

THE AUK:

A QUARTERLY JOURNAL OF ORNITHOLOGY.

VOL. XII.

JULY, 1895.

NO. 3.

NOTES ON BIRDS OBSERVED IN TRINIDAD.

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Plate III.

Our knowledge of tropical birds is so largely derived from the journals of travellers and naturalists, whose arduous explorations in the less accessible parts of the tropics have been attended by hardship and exposure, that most of us are discouraged from even attempting to visit the fascinating regions they describe. The brilliantly colored Trogons, Toucans, Jacamars and Hummingbirds which figure so conspicuously in cases of tropical birds, thus seem to us to be more or less unreal inhabitants of lands forever beyond the bounds of our experience. The truth is, however, that we may be comfortably and safely established in a tropical forest in less time than it frequently takes to reach the nearest European port.

The Island of Trinidad belongs politically to the British West Indies, but faunally it is a small bit of the South American continent which has been detached in recent geological times. Its bird-life therefore is very similar to that of the Venezuelan mainland and is quite unlike the comparatively meagre, insular avifauna of the true West Indian islands to the northward. A visit to Trinidad is thus practically a visit to South America. But it

is not alone the richness of the fauna which leads us to recommend Trinidad as an exceptionally favorable field for the naturalist with limited time at his command. Its additional advantages are: accessibility, a healthy, in fact during the dry season, from December to May, perfect climate; the safety and material comforts which one is sure of finding in a British colony; and a Naturalists' Field Club whose members, as we know from pleasant experiences, will cordially receive brother naturalists. It is evident then that a trip to the tropics, far from being an undertaking involving much time and risk of life, may be an excursion from which one may return in two or three months richer both physically and mentally.

From New York to Port-of-Spain, by the direct line of steamers, is a voyage of nine days, or occasionally a steamer of the Windward Island line continues from Barbadoes, the usual terminus, to Trinidad. The latter is by far the more enjoyable sail and, taking only six days longer, gives one an opportunity to land at a dozen or more islands *en route*.

Port-of-Spain possesses fair hotels and stores which will compare favorably with those of our larger cities. Black Vultures swarm in the streets, and many birds, notably the Qu'est-ce-qu'il-dit (*Pitangus sulphuratus*) and Ani (*Crotophaga ani*), are common in the Botanic Gardens and neighboring savannas. Indeed the ornithologist will find much to interest him in the immediate vicinity of the city, but he should lose no time in hastening to the virgin forests, or 'high woods,' as they are locally known, where birds may be studied under absolutely natural conditions. The government rest-house on the Moruga Road, kept by Corporal and Mrs. Stoute, was Mr. Chapman's headquarters during March and April, 1893, and from every point of view leaves nothing to be desired. In fact, we doubt if there exists a place elsewhere in the tropics where for a small compensation a naturalist may find so thoroughly comfortable a home, with the best of food and attention, at the border of a primæval forest.

We, however, were even more fortunate, for in accepting the invitation of Mr. Albert B. Carr to visit him at his cacao estate in the Caparo district we found not only a delightful home in a

region where birds were abundant, but had also the companionship and assistance of Mr. Carr and his brother, both born naturalists and skilled woodsmen, with a thorough knowledge of the country. Every ornithologist knows what this means. Without the guidance of our hosts we should have seen less in three months than we did in three weeks. Through their unceasing efforts every hour of the day, and almost every hour of the night also, brought some interesting incident. The birds and mammals of the region were passed in review for our benefit, and at the conclusion of our stay there were but few species which had not answered to the roll-call of gun, dog, and trap.

Mr. Carr's home is near the point of a narrow wedge of cacao estates which penetrates the forests from Chaguanas on the western side of the island. The limits of the cacao and shading immortal trees, among which his picturesque, thatched house is situated, are sharply defined by the dark walls of the virgin forest, distant only a few hundred yards. In the morning, from its apparently fathomless depths, came the deep-voiced roaring of monkeys (*Myctes*). Toucans, perching on the topmost branches of the higher trees, croaked defiance at some answering rival half a mile away. The united voices of cooing Doves (*Engyptila*) formed a soft monotone to which the ear frequently became insensible. The sweet, weird trilling of Tinamous arose from the bordering undergrowth. In the trees about our house were noisy Qu'est-ce-qu'il-dits; shrike-like Vireos (*Cyclorhis flavipectus*) whistled vigorously; active bands of Tanagers (*Ramphocelus* and *Tanagra*) flitted restlessly about uttering their weak, squeaky notes. Five or six species of Hummingbirds were generally numerous about the blossoming bois immortels, while overhead were flocks containing four species of Swifts (*Chatura*) whose twitterings reminded us of other and very different scenes. In the cool, darkened forest Jacamars were piping, Trogons cooing, Motmots hooted softly, and the mournful whistle of a Pygmy Owl (*Glaucidium*) told of his partially diurnal habits. The species mentioned were all more or less common. Their voices formed an ever present accompaniment for all other bird-music — a background to the picture of bird-life which we do not intend to attempt describing.

Our stay at Caparo was crowded with events, but the time was too short for us to make many observations sufficiently novel to warrant publication in the pages of a scientific journal, and in this connection we propose to speak of but three species, to the published accounts of whose life-histories, thanks to Mr. Carr's assistance, we think we can make some additions. They are the Bell-bird or Campaño (*Chasmorhynchus variegatus*), a Humming-bird locally called 'Brin-blanc' (*Phaethornis guyi*), and a large Goatsucker (*Nyctibius jamaicensis*).

To what extent the other three species of the genus deserve the reputation sometimes given them we cannot say, but the voice of *Chasmorhynchus variegatus* would undoubtedly prove a disappointment to those who expect a Bell-bird to be a Bell-bird in more than name. But while its notes bear no resemblance to the "deep tolling of a bell" they proved none the less singular, and we class them among the most remarkable we have ever heard.

To hear a Campaño is one thing, to see it quite another. The birds haunt the tree-tops in the virgin forest, where, concealed by the canopy of foliage and intervening parasitic plants and creepers, they can be found even by practiced hunters only under favorable conditions. Mr. Carr had prepared us for the failure which attended our first Campaño hunt. Nevertheless, we actually heard a Bell-bird calling,—sufficient encouragement, if we had needed any, to continue the search. Our persistency, however, was not tested. The following day Mr. Brewster and Mr. Carr discovered a Campaño within a mile of the house and had an exceptional opportunity to study it. After following the sound of the bird's voice for a quarter of a mile, they finally saw it perched on a bare twig at the top of a tree about seventy-five feet from the ground. After watching it there for about fifteen minutes, during which time it uttered its several calls, it was disturbed by two Toucans alighting near it and sought a perch in a strong, clear light about twenty feet from the ground and not over twenty yards from the observers. This, according to Mr. Carr, was an unusual proceeding. It remained in this position for about fifteen minutes, repeating all its notes. The following day we all visited the place and the Bell-bird kept the tryst, appearing on the high perch it had occupied the preceding day.

The records of these two occasions were read aloud and endorsed by each member of the party. From them we present the following description of the Campaño's calls. The bird has three distinct notes, the first *bok*, the second *tui*, the third *tang*. The *bok* is by far the loudest and for this reason is the one most frequently heard, and is doubtless the call alluded to by previous writers.¹ It can be heard in the flat forest at a distance of about 600 yards. Waterton, it may be remembered, says the "toll" of *Chasmorhynchus niveus* may be heard at a "distance of three miles." The *bok* is sometimes uttered with much regularity about every ten seconds; at other times longer or shorter intervals may elapse. At a distance of four or five hundred yards it resembles the stroke of an axe on hard, resonant wood. One would now imagine that the bird was within seventy-five yards, so deceptive is the nature of this note. As one approaches, the call does not seem to increase in volume and one is apt to imagine that the bird is retreating slowly from tree to tree. This impression, however, is dispelled when one comes within one hundred yards of the bird, for the sound then becomes much louder until, as one gets directly beneath the caller, its volume is simply tremendous. It now has a slightly rolling quality—*br-r-r-ock*—and is so abrupt and explosive in character that it is nearly as startling as the unexpected report of a gun. At each utterance of this note the bird opens his bill to its widest extent and throws his head forward and downward with a violent, convulsive jerk as if he were in a passion and striking viciously at some rival. This motion is so violent that the bird evidently has some difficulty in maintaining his footing during its delivery as well as in recovering his balance afterward.

The second note, *tui*, is much softer and is delivered from six to eleven times in such rapid succession that the notes form an unbroken series. Despite this, each *tui* is closely followed by a metallic *ting* which sounds exactly like an echo and appears to be of about the same duration and nearly as loud as the note it supplements. The *tui* notes are given so quickly that at first it did not seem possible for the bird to produce another note between

¹ Cf. Taylor, *Ibis*, 1864, p. 88.

them, and it was only after repeated observations we became convinced that the *ting* was an integral part of the *tui* call. While uttering these notes the bird sits rather erect and perfectly motionless save for a slight tremulous movement of the throat and tail which accompanies the delivery of each *tui*.

The third note, *tang*, is also repeated a number of times — eighteen to thirty-three — in quick succession. It sounds much louder than the *tui* and the intervals between the notes, though short, are well marked. Sometimes the bird began slowly and gradually increased the rapidity of its utterance, at others there were regular intervals between the notes. The *tang* may be likened to the sound produced by striking a piece of bar iron a sharp blow with a hammer. It is accompanied or followed by a distinctly metallic but not clear, ringing vibration. At a distance of one hundred yards the *tang* sounds like a slow strumming on the C natural string of a banjo, as Mr. Carr actually demonstrated. It can be heard at a greater distance than the *tui* but not so far as the *bok* and at two hundred yards would attract the attention of only a practiced ear.

While 'tanging' the bird sits rather erect, the head well up, the wings drooping beneath the closed tail. At each utterance the tail vibrates slightly, there is a marked swelling of the black throat, and the mouth is opened to its widest extent, the lower mandible being worked with some apparent effort while the upper mandible and rest of the head are held perfectly motionless.

Although probably an extremely local and not very active species the bird was alert and watchful. Its movements were quick, the head being often turned from side to side, or the wings were twitched nervously, and at more or less regular intervals it would turn squarely on its perch and face in the opposite direction. The fleshy appendages on the Bell-bird's throat resemble bits of leather shoe-string. They hang loosely in the freshly killed specimen and are then so conspicuous that we were surprised to find they could not at any time be distinguished on the living birds.

The greenish plumage of the female Bell-bird renders it so difficult of observation that even Mr. Carr was not familiar with it. It was therefore a rare bit of good fortune for us that a

female of this forest-living species so far departed from its normal habit as to leave the woods and perch on the topmost branch of a bois immortel which shaded the palm-thatch beneath which we prepared specimens — an offered sacrifice we were not slow to accept.

The observations¹ of Mr. Chapman on the song-habit of the 'Rachette' Hummingbird (*Pygmornis longuemarcus*) were confirmed by our discovery of a locality to which the birds evidently came to sing, and Mr. Carr directed us to two resorts regularly frequented by *Phaethornis guyi* for the same purpose. Both were in the forest where the trees were rather small and slender and plentifully undergrown with roseau palms. One locality was not far from the house. We visited or passed it many times always hearing from one to six birds singing within an area one hundred feet square. Each bird seemed to have its own particular perch which we would find occupied day after day. The song of this species is louder and has more character than that of *Pygmornis*. It is an unmusical *yep-yep-yep* uttered very rapidly, and, when the bird is undisturbed, continued for several minutes without break or pause. They sit erect but in an easy attitude with the points of the wings drooping below the tail. With every *yep* the long bill is thrown nearly straight up and the mouth slightly opened while the red lower mandible shows conspicuously and the body is twitched convulsively. Each note is accompanied by one or two vertical vibrations of the tail. Rarely, and apparently when under the influence of some excitement, the vibrations are increased in length, force and rapidity until a maximum of motion is attained. Then there is a second's pause, the tail-feathers are spread to the fullest extent and pointed forward over the back until the tips of the long central feathers nearly touch the back of the head. The effect, as may be imagined, is most striking, the birds suggesting diminutive Turkey-cocks.

More or less frequently a rival would approach, buzzing loudly, when the calling bird darted recklessly at the trespasser, and the two birds dashed wildly through the forest, one apparently in

¹ Bull. Am. Mus. Nat. Hist., VI, 1894, p. 55.

pursuit of the other, squeaking loudly and uttering an explosive *tock, tock*. This sound can be closely imitated by pressing the tongue against the roof of the mouth and withdrawing it forcibly. Generally the perching bird returned within a minute and resumed its interrupted song.

It therefore appears that *Pygmornis longuemareus* and *Phaëthornis guyi* — and probably also other species of these genera — have regular resorts which they visit for the purpose of singing and that they evidently sing at no other time. The significance of this habit — unique so far as we know — we cannot satisfactorily explain. All the specimens killed at these singing haunts were males. Whether the females are present we cannot say.

There are few natives of Trinidad who do not know, by name at least, the animal locally termed 'Poor-me-one.' This name is given to a small Ant-eater (*Cyclothurus didactylus*) which is popularly supposed to utter the notes serving as the origin of the words. Mr. Carr, however, as quoted by Mr. Chapman¹, definitely proved that Poor-me-one was a species of Goatsucker by shooting the bird in the act of calling, but failing to preserve the specimen, its specific identity could not be determined.

Only a person who has heard Poor-me-one calling from the moonlit forest can understand how ardently one longs to identify the caller. Our curiosity was frequently aroused by the hooting of some to us unknown species of Owl, or even the cry of some night-bird whose identity was an entire mystery, but the cry of Poor-me-one is possessed of a human quality which appeals to one as strongly as the voice of a fellow-being. Its tone is so sweet and tender, so expressive of hopeless sorrow, that even the negroes are impressed by it, as its native name, Poor-me-one, meaning "Poor me all alone," clearly shows. To identify Poor-me-one, therefore, became one of our chief objects.

This strange bird calls only on moonlit nights from February to June. The calendar told us the moon would be full March 20, and as the slender crescent grew larger we listened anxiously for the notes of *Nyctibius*. But we neither saw nor heard sign of it until the evening of the 16th when, as we were strolling home-

¹ Bull. Am. Mus. Nat. Hist., VI, 1894, p. 59.

ward from the forest, we saw a large bird, which we at first supposed was an Owl, sitting on the top of a stub about thirty feet in height. We had no difficulty in identifying this bird as a *Nyctibius* and congratulated ourselves on the knowledge that it was probably resident so near our house. For the four succeeding evenings doubtless the same bird appeared about half an hour after sunset and on set wings sailed slowly and majestically from a point of the forest distant some two hundred yards, until directly above the stub upon which we had first seen him. After descending in a broad spiral, which ended a few feet below his perch, he pitched sharply upward, closing his wings as he secured a footing. His position was upright and he seemed a continuation of the stub, against which his tail was pressed. He invariably faced the west but kept his head turning from side to side after the manner of Flycatchers. At short, irregular intervals — usually two or three times a minute — he launched out after insects, flying in a perfectly straight, slightly ascending line with firm and vigorous, yet easy wing-beats, his tail wide-spread. At the moment he reached his prey he often turned abruptly to secure it, then wheeled suddenly, and returned to the stub by a long, slow, graceful glide and lit as before described. With few exceptions his sallies were made toward the west, evidently because of the background afforded by the after glow, and he often flew thirty or forty yards before reaching his object.

Interesting as it was to observe a Goatsucker in the rôle of a hawk-like Flycatcher, the certainty of our identification made us earnestly wish to hear the bird call, when the identity of Poor-me-one and *Nyctibius* could be instantly settled. But each night the bird returned to the forest in silence.

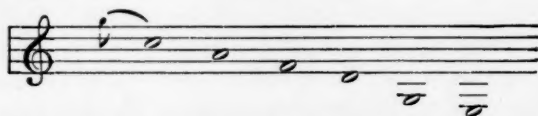
March 20 the moon was full and shortly after eight o'clock, to our great delight, we heard Poor-me-one calling from the forest. We at once started in the direction of the sound. Crossing a belt of cacao, leaping some of the drains, stumbling into others, wading knee-deep through the dew-drenched grass, breathless and perspiring, we came at length to the edge of a low, swampy woods whence issued the strange cry. The bird now became silent. We listened anxiously for several minutes and were greeted only by the *cook-er-ree-coo* and startling scream of an Owl (*Megascops brasi-*

liensis). Finally, after consultation, Mr. Carr whistled an imitation of the cry of Poor-me-one. Almost instantly an answer came from the woods and soon a large Goatsucker, which we at once recognized as the species we had seen on the stub, came sailing directly over us. He circled twice, uttered a low call, and alighted on the topmost twig of a bois immortel distant twenty yards. A moment later, puffing out his throat, he uttered the Poor-me-one call. We suppressed our exultation with difficulty.

After calling a dozen or more times the bird returned to the woods, but several times returned in response to our imitation of its notes. Usually he perched on the topmost, slender twigs of a bois immortel, the last situation one would expect a Goatsucker to select.

The locality was not far from the stub upon which we had originally discovered *Nyctibius*, and we had little doubt that the individual seen there was the one we had heard calling. Indeed, one hour later this bird, which we easily recognized by a peculiarity in its call, came to the vicinity of the stub in response to Mr. Carr's whistle. Here he was joined by his mate, both birds perching in the topmost branches of the forest trees.

The song of Poor-me-one consists of eight notes, which Mr. Carr, in an article¹ on this species, writes:—



At a distance of half a mile only three of these may be heard, and all are not audible until one is quite near the singer. The inexpressibly sad, human quality of Poor-me-one's call affects every one who hears it. Waterton, we have no doubt, refers to this bird when he compares the voice of "the largest Goatsucker in Demarara" to "the last wailing of Niobe for her poor children, before she was turned into stone," and, in describing the call, writes: "Suppose yourself in hopeless sorrow, begin with a high, loud note, and pronounce 'ha, ha, ha, ha, ha, ha, ha,' each note lower and lower, till the last is scarcely heard, pausing a moment or two twixt every note. . . ."

¹ Journal Trinidad Field Naturalists' Club, II, Dec. 1894, p. 137.

Goss,¹ on the contrary, in his excellent account of the habits of this species, describes its call as a "loud and hoarse *ho-hoo*," and adds: "Sometimes the same syllables are heard, in a much lower tone, as if proceeding from the depth of the throat." The account of so careful an observer is not to be questioned, and it is quite probable that the notes of the Jamaican bird differ markedly from those of the birds which inhabit Trinidad.

It seems little short of murder to kill one of these birds. Certainly to shoot a calling bird was out of the question. Our single specimen was shot as he sailed by one evening near the stub where our first observations were made. He was wing-tipped and before sacrificing him to the cause of science we secured the photograph from which the illustration (Pl. III) accompanying this article was drawn.

LIST OF BIRDS OBSERVED IN THE VICINITY OF
FORT KEOGH, MONTANA, FROM JULY, 1888,
TO SEPTEMBER, 1892.

BY CAPT. PLATTE M. THORNE, U. S. A.

FORT KEOGH, on the right bank of the Yellowstone, has an altitude of 2365 feet. The river bottom has an average width of two miles, and has in parts a small and obscurely defined second bench. River sand is reached at an average depth of six feet in the higher parts. Tongue River empties into the Yellowstone two miles to the north. Both rivers are rapid, and the only still water is an irregular, reedy pond fed by springs and about three-fourths of a mile long. This pond goes dry in summer some years and remains so during the winter. The growth of cottonwood along both rivers is in places heavy, some trees showing great age. Wild rose bushes grow luxuriantly on the moister

¹ Birds of Jamaica, p. 42.

parts near the rivers, and there are some small willows. The left bank of the river is high bluff, back of which is elevated rolling prairie. Outside the river valley the country is all prairie or 'Bad Lands.'

No species is included in the following list that I have not seen, and nearly all, except very large birds, are in my collection.

1. *Colymbus nigricollis californicus*.—Rare. Two June 3, 1889; one May 14, 1892.

Larus sp.?—A few large and a few small Gulls; one seen each year, but I have never been able to kill any.

2. *Merganser americanus*.—Saw one at a taxidermist's in Miles City, Montana, who said it was killed here late in October, 1889.

3. *Merganser serrator*.—Rare. One female, April 27, 1889.

4. *Lophodytes cucullatus*.—Not common. From June 14 to July 17, 1889, about twenty were seen daily. At the latter date the pond they frequented became dry.

5. *Anas boschas*.—Common in spring and fall; a few seen occasionally during summer.

6. *Anas strepera*.—Not common. Transient.

7. *Anas americana*.—Not common. Transient.

8. *Anas carolinensis*.—Common. Must breed to some extent, as a few remain all summer.

9. *Anas discors*.—Common. Transient.

10. *Spatula clypeata*.—Common. A few remain all summer.

11. *Dafla acuta*.—Common. Transient.

12. *Aythya americana*.—Not common. A few single birds and pairs. Transient.

13. *Aythya affinis*.—Rare. Two, March, 1889; no others.

14. *Glaucionetta clangula americana*.—Rare. Flock of ten seen April 17, 1889. No others observed.

15. *Charitonetta albeola*.—Rare. A few in fall; not seen in spring.

16. *Erismatura rubida*.—Rare. A flock of about forty observed April 21, 1889. No others seen. Two of the males killed were in almost perfect breeding plumage.¹ The movements of this Duck seem very erratic. During the five and a half years I was stationed at Fort Lyon, Colorado, I saw them but twice, viz., a flock of about fifty in March, 1883, and a flock of twenty-five in March, 1886. In southwestern Texas, in the fall, I often found them abundant on one day and none at all the next.

17. *Chen rossii*.—Rare. One female killed April 25, 1892. It was alone and much emaciated.

¹ Many Ducks called 'transient' would probably be found to breed here if there were suitable nesting places.

18. *Branta canadensis*.—Common in large flocks in spring and fall, am not certain they were all this species, but all that I killed were. Old inhabitants say they formerly nested to some extent in trees.

19. *Ardea herodias*.—Common in spring and fall and some remain in summer that I think breed.

20. *Rallus virginianus*.—Rare. One male killed August 10, 1888. This is the only one I am certain of as Soras are found where this was taken.

21. *Porzana carolina*.—Common. Breeds. Took a young one July 8, 1889. The down was mostly replaced by feathers but hairy filaments remained.

22. *Fulica americana*.—Common. Breeds.

23. *Phalaropus lobatus*.—Rare. Four were seen June 18, 1889. Two of those killed were females with ova smaller than No. 12 shot. This would seem a late date for this bird to be found here.

24. *Phalaropus tricolor*.—Tolerably common in May and June. A description of three at play as seen by me was published in 'The Auk,' Vol. VI, p. 336.

25. *Recurvirostra americana*.—Rare. A few in spring.

26. *Gallinago delicata*.—Rare. Am satisfied I saw this bird in the spring of 1889, but I did not take any specimens.

27. *Tringa bairdii*.—Rare. A few in spring.

28. *Tringa minutilla*.—Common in spring. A few in fall.

29. *Ereunetes pusillus*.—Common in spring. A few in fall.

30. *Totanus melanoleucus*.—Common in spring. A few in fall.

31. *Totanus flavipes*.—Common in spring and fall. A few remain so late that I think they breed.

32. *Totanus solitarius*.—Rather rare. A few may breed.

33. *Symphemia semipalmata inornata*.—Rather rare in spring. About twelve seen in all.

34. *Bartramia longicauda*.—Common. Seen in flocks in this valley in spring. Breeds quite commonly on the elevated prairie.

35. *Actitis macularia*.—Rare. Three seen in all.

36. *Numenius longirostris*.—Common. In flocks in spring. Breeds on elevated prairie.

37. *Ægialitis vocifera*.—Abundant in spring. Flocks seen containing hundreds. Not common in fall. If it breeds it must be very sparingly.

38. *Ægialitis montana*.—Rather rare. A few scattering birds in spring and summer.

39. *Pediocætes phasianellus campestris*.—Common. Have had no opportunity to compare them with other Sharp-tails. They seem to frequent the vicinity of trees and bushes more than the Dakota birds. During the last three years they have almost entirely ceased coming into the river bottoms in cold weather and instead seek shelter among the pines on the divides. I have found them abundant in December on the high divide between Powder and Tongue Rivers. The great number that used to be killed in the river bottoms in winter may have driven

them to seek other shelter. Their food in winter seems to consist chiefly of the berries of the wild rose.

40. *Centrocercus urophasianus*.—Common. Different coveys were found mixed when the young were two-thirds grown. In April, 1891, I watched two pairs for some time at a short distance from me. The males had their air-sacks inflated and feathers ruffled, showing more white than would seem possible, and looking very large. They spread their tails, dragged their wings and strutted very much as a domestic Turkey Gobbler does. Their peculiar tail gave the performance a ridiculous appearance. Capt. Bendire, U. S. A., writes me that he once observed similar actions.

41. *Zenaida macroura*.—Common. Have known two broods to be hatched in one nest during the season.

42. *Cathartes aura*.—Rare. Twelve seen in June, 1889.

43. *Circus hudsonius*.—Common. Breeds.

44. *Buteo swainsoni*.—Rare. Have seen only two that I am certain of.

45. *Aquila chrysaetos*.—Rare. One, apparently two years old, seen in December, 1889. Two young were taken in the Bad Lands in 1889. One of these was kept in a cage at the Fort for about a year.

46. *Falco richardsonii*.—Rare. Two taken in the fall of 1889.

47. *Falco sparverius*.—Common. Breeds. I have never been in a country where Hawks are as scarce as they are here.

48. *Asio wilsonianus*.—Rare. Three seen.

49. *Asio accipitrinus*.—Rare. Two seen.

50. *Megascops asio*?—Rare. Three seen. None taken.

51. *Bubo virginianus subarcticus*.—Common. Some breed.

52. *Nyctea nyctea*.—Usually rare. In the winter of 1889-90 eighteen were seen or reliably reported. They seemed to come in advance of the intense cold that set in December 31, 1889, and lasted twenty-four days. The last was seen February 4, 1890. The Cheyenne Indians say none had been seen since "The-bad-cow-year" (winter of 1886-87). They call it "Wo-com-mis-ta" (Owl white). I also saw one in the winter of 1890-91 and heard of four more. All I examined were fat. None attempted to alight on trees.

53. *Speotyto cunicularia hypogæa*.—Common, but scarcer than usual at other localities when they are found. There are large old prairie dog towns but very few prairie dogs.

54. *Coccyzus erythrophthalmus*.—Rare. One female taken June 27, 1889. The largest ova were of the size of BB shot. One male taken July 24, 1889.

55. *Ceryle alcyon*.—Common. Not seen on this part of the Yellowstone, owing probably to the color of the water, but found on upper Tongue River and Lamar Deer Creek.

56. *Dryobates villosus leucomelas*?—Rare.

57. *Dryobates pubescens*.—Rather common. About as many in winter as in summer. Think it breeds.

58. *Melanerpes erythrocephalus*.—Common. Breeds.
59. *Colaptes cafer*.—Common. Breeds. Sent twenty-five skins to Dr. J. A. Allen, American Museum of Natural History, New York City. He writes me of them: "The series as a whole is one of special interest, the specimens all coming from localities within the range of the interbreeding of *C. auratus* and *C. cafer*. There is not a specimen in the whole series that is strictly *C. cafer*, though several approach true *cafer* very strongly. The greater part are much more *cafer* than *auratus*. In a few the characters of the two species are about equally represented. In one or two the *auratus* characters prevail. No two specimens are quite alike, while the combination of characters is often peculiar and very interesting."
60. *Chordeiles virginianus henryi*.—Common. Breeds.
61. *Tyrannus tyrannus*.—Common. Breeds. Not as numerous as *T. verticalis*.
62. *Tyrannus verticalis*.—Abundant. Breeds. For six successive summers a pair repaired and used a nest in a tree close to my quarters.
63. *Sayornis saya*.—Common. Breeds. Nests under eaves of buildings about the Fort and under sandstone rocks in the Bad Lands.
64. *Contopus richardsonii*.—Common. Breeds.
65. *Empidonax pusillus*.—One specimen, June 8.
66. *Empidonax minimus*.—Not common. Taken as late as May 31.
67. *Empidonax hammondi*.—Two specimens,—an adult July 17, and a young bird June 8.
68. *Otocoris alpestris arenicola*.—Abundant. Must breed here, but I have never found a nest. They are present in varying numbers the entire year. In the fall of 1889 I sent one hundred and eighteen skins of birds taken every month in the year to the American Museum of Natural History, New York. They were examined by Mr. Jonathan Dwight, Jr. and pronounced to be "all *arenicola*."
69. *Pica pica hudsonica*.—Common. Breeds. Some seen throughout the year.
70. *Corvus corax sinuatus*.—Not common.
71. *Corvus americanus*.—Not common. A small flock sometimes seen at the Fort garbage dump. More common at Tongue River Agency, Lame Deer, Montana. About as many in winter as in summer.
72. *Molothrus ater*.—Abundant. Breeds. Nests on the ground seem to be preferred as the receptacle of its eggs.
73. *Xanthocephalus xanthocephalus*.—Abundant in suitable localities. Breeds. As to the males flocking by themselves in the breeding season, I can only say that on June 18, 1889, I saw a flock of about seventy-five some half a mile from their nesting place and could not see a female among them.
74. *Agelaius phœniceus*.—Common. Breeds. Have found their nests within a foot from those of the Yellow-headed Blackbird. No signs of quarelling between the two kinds.
75. *Sturnella magna neglecta*.—Abundant; breeds. Common by the middle of April and many stay until near the last of October.

76. *Icterus bullocki*.—Common. Breeds.

77. *Scolecophagus cyanocephalus*.—Abundant in spring and fall. Do not think they breed.

78. *Quiscalus quiscula æneus*.—Abundant. Breeds. This is the worst foe to the eggs and young of other birds to be found here. Have often seen them rifling nests. They appear never to eat the eggs at the nest but thrust their bills into the eggs and fly off with them. A Wren or a Summer Yellow-bird can repel a single one. Have seen as many as twenty combine to rob an Oriole's nest.

79. *Coccothraustes vespertinus*.—Rare. Saw three at Tongue River Agency, Lame Deer, Montana, April 26, 1891. One female had ova just visible without a glass.

80. *Loxia curvirostra minor*.—Rare. Not found at Fort Keogh. Took six and saw six others at Lame Deer, Montana, in May, 1891. The condition of the ova showed that it was not near the breeding period. Lame Deer has quite a high altitude and the hills are covered with pine trees.

81. *Leucosticte tephrocotis*.—Abundant in winter. Arrive by November 6 or 7 and remain here in varying numbers until the last of March. They are fond of oats and the mule corral is their favorite place. When it is cold and stormy they gather into the Post by thousands. If a warm day comes, especially if the ground is bare, few are to be seen, and where they go at these times I do not know, as I never find them about the country. They are often seen sheltering themselves in the old nests of Cliff Swallows. They are exceedingly restless birds.

82. *Leucosticte tephrocotis littoralis*.—Common in winter. Found in flocks with the last in about the proportion of one in twenty. They are among the first birds to arrive and the last to depart. Mr. Robert Ridgway wrote me March 6, 1889, that Fort Custer, Montana, was the most eastern point from which they had been previously reported.

83. *Acanthis linaria*.—Abundant during the winter of 1888-89, arriving November 7 and remaining until the middle of February. A few small flocks were seen other winters. I took a pretty large number thinking I might find *A. h. exilipes* among them, but although there is a good deal of variation in the size, markings and plumage of my specimens, I do not think I have taken it.

84. *Spinus tristis*.—Common. Breeds.

85. *Plectrophenax nivalis*.—Abundant during the winter of 1889-90. None seen other winters. Arrived November 14. Most abundant the middle of February. Last seen March 17. An old teamster told me he had seen them here before but could not tell what year.

86. *Rhynchophanes mccownii*.—Usually not common. A few small flocks are seen in spring, and some few birds remain in summer which I think breed here. At Stoneville, Montana, on the Little Missouri River, from September 4 to September 11, 1889, immense flocks were seen daily.

87. *Poocætes gramineus confinis*.—Common. Breeds.

88. *Ammodramus sandwichensis alaudinus*.—Common. Breeds. Is rare in the latter part of May and during June. Common in July. First

juveniles taken July 23. Some specimens examined by Mr. William Brewster he reports as "perhaps approaching *A. sandwichensis*."

89. *Chondestes grammacus strigatus*.—Common. Breeds.

90. *Zonotrichia querula*.—Not common. Seen only in the fall of 1889 (September 22 to October 13). All I took were juveniles.

91. *Zonotrichia leucophrys*.—Not common. Mostly seen in spring, a few in fall.

92. *Zonotrichia leucophrys intermedia*.—Tolerably common in spring and fall.

93. *Spizella monticola ochracea*.—Usually abundant during the colder months. The winter of 1889-90 was an exception, as none were seen in December, January and February. The dates of their arrivals and departures vary fully a month in different years.

94. *Spizella socialis arizonæ*.—Common. Breeds. Found also in the pine region at Lame Deer, Montana. Mr. Brewster says my Colorado specimens are "not typical"; these appear to be the same as the Colorado specimens.

95. *Spizella pallida*.—Common. Breeds. They seem to disappear about May 22 and are not seen again until the middle of July, when juveniles are taken. The year 1888 was an exception to this, adults being seen throughout May, June and July.

96. *Spizella breweri*.—Common. Breeds. Nests with eggs found by June 16.

97. *Junco hyemalis*.—Not common. Breeds. At Lame Deer, Montana, more common; found there in May, June and July.

98. *Melospiza fasciata*.—Rare. One female taken April 17, 1889.

99. *Melospiza lincolni*.—Rare. One male May 6; one female May 10, 1889. No others recognized.

100. *Pipilo maculatus arcticus*.—Common. Breeds.

101. *Habia melanocephala*.—Tolerably common. Breeds.

102. *Passerina amœna*. Rare. Five seen, none taken.

103. *Calamospiza melanocorys*.—Abundant. Breeds.

104. *Petrochelidon lunifrons*.—Abundant. Breeds. Large colonies formerly built under cliffs in the Bad Lands, as is shown by the remains of their old nests. All now nest about buildings.

105. *Chelidon erythrogaster*.—Common. Breeds.

106. *Tachycineta bicolor*.—Tolerably common. Some pairs nest in the Post.

107. *Clivicola riparia*.—I have not taken it but there is evidence that a large colony of what I believe to be this bird formerly nested in a bluff on the left bank of the river. This bluff was in range with the targets on the rifle range, which was probably the reason it was abandoned.

108. *Ampelis garrulus*.—Abundant at times in winter. Seem erratic in their movements and to vary greatly in numbers in different years. I have examined the stomachs of a good many and their food while here seems to consist almost entirely of berries of the wild rose. They open

the berries on logs and rocks and eat the inner part only. Have seen hundreds at a time at the berries and all very garrulous.

109. *Lanius borealis*.—Rare. A few seen singly during the coldest weather.

110. *Lanius ludovicianus excubitorides*.—Rare. Three seen in the summer and fall of 1892. No others.

111. *Vireo olivaceus*.—Rare. Three in spring.

112. *Vireo gilvus*.—Not common. Breeds. Have taken juveniles by July 24. Differs somewhat from my Colorado specimens identified by Mr. Brewster.

113. *Helminthophila celata*.—Common in April and May.

114. *Dendroica æstiva*.—Common. Breeds.

115. *Dendroica coronata*.—Tolerably common in spring.

116. *Dendroica striata*.—Common in May. Males observed to arrive first.

117. *Seiurus aurocapillus*.—Rare. One male in worn plumage, moulting, taken July 23, 1888.

118. *Seiurus noveboracensis notabilis*.—Rare. One juvenile taken Sept. 12, 1889. Identified by, and now in collection of Mr. William Brewster.

119. *Geothlypis trichas occidentalis*.—Rare. Four in spring.

120. *Icteria virens longicauda*.—Not common. Breeds.

121. *Sylvania pusilla*.—Rare. One male May 19, 1889.

122. *Setophaga ruticilla*.—Common. Breeds. Young taken by July 24.

123. *Anthus pensilvanicus*.—Rare. Four taken on Little Missouri at Stoneville, Montana, September, 1889.

124. *Oroscoptes montanus*.—Rare. Two on Tongue River, seventy-five miles from mouth, August, 1890. One taken was a juvenile.

125. *Galeoscoptes carolinensis*.—Common. Breeds.

126. *Harporhynchus rufus*.—Abundant. More numerous than I have seen it elsewhere.

127. *Salpinctes obsoletus*.—Common. Breeds. Found only in the Bad Lands.

128. *Thryothorus ludovicianus*.—Rare. Two in May on the divide between Powder and Tongue Rivers. One in May and two in August at Lame Deer, Montana.

129. *Troglodytes ædon aztecus*.—Common. Breeds. Took, among others, a pair and two of their young.

130. *Sitta carolinensis aculeata*.—Rare. Saw six and took two at Lame Deer, Montana, July 11, 1892. One taken is thought to be a juvenile.

131. *Parus atricapillus septentrionalis*.—Tolerably common. Breeds in the pines at Lame Deer, Montana. Seen at the Post in winter.

132. *Regulus calendula*.—Rare. One male, September, 1889.

133. *Myadestes townsendii*.—Rare. Six were seen at Lame Deer, Montana, July 9, and one juvenile August, 1892.

134. *Turdus aliciae*.—Rare. One female, May, 1889.

135. *Turdus ustulatus swainsonii*.— Abundant in spring, rarely seen in fall.

136. *Merula migratoria propinqua*.— Common. Breeds. Have found them common also among the pines during the breeding season, fifty miles from a house.

137. *Sialia arctica*.— Common. Breeds among the pines on the divides; rarely seen elsewhere.

AN HOUR WITH BAIRD'S AND LECONTE'S SPARROWS NEAR ST. LOUIS, MISSOURI.

BY O. WIDMANN.

RICHFIELD, St. Charles County, Missouri, is a station on the Keokuk and Northwestern R. R., forty miles northwest of St. Louis. I do not know who gave the name to the station, but presume that it was an ornithologist, since the vicinity is an exceedingly rich field for the study of birds. Oct. 13, 1894, I identified fifty-five species and added fifteen more the next day. In these two days I had gone over only a part of the ground, mainly the wooded portion, adjacent to Cuivre River and Horse Shoe Lake. The marsh had not been explored. To do this I returned on the 18th, or rather, I was on the marsh before daylight, watched the Meadowlarks, the Cedarbirds, the Robins, the Blackbirds and Ducks leave their roosting places in the marsh; and it was here at the border of Mud Lake that I found the Baird's Sparrow, two individuals, in company with other Sparrows, mainly *Ammodramus* and *Melospiza*.

Not being a 'shootist,' I cannot lay the bird before you. I have to beg you to accompany me into the field to the scene of the encounter. Mud Lake is one of a series of marsh lakes, all of which are more or less connected by sloughs and are the common receptacle of the precipitation in the surrounding country. In times of highwater in the Mississippi River the whole system is filled by backwater, pouring in through the Cuivre River and overflowing the marshes, which are on that account not cultivated, except the highest levels, forming islands in the ocean of

grasses and weeds which grow in profusion. Parts are used for pasturing, and the whole landscape is richly dotted with trees, singly and in groups, mostly pin oaks, and honey locusts, with clusters of persimmons, which, shooting up as thickly as weeds, are a peculiar feature of the landscape.

It is seven A. M., and the point of observation is a clump of locusts at the southeast border of the lake, so as to have the sunlight in the back. It is well to be in the shade; the October sun is pretty warm, even at this early hour. We had 80° F. yesterday and to-day promises to be still warmer.

Mud Lake, as the name implies, is not more than knee-deep, but last month's rain caused a rise of six inches, and the water now covers about 200 acres. It is entirely overgrown with spatter dock in the deeper places, with smartweed in shallower water, and all around its edge for a varying width. Encircling the regular expanse of water is a fringe of low willows and elbow wood, mostly dead and crumbling, killed by fire some years ago. In back of the willow fringe begins the endless ocean of marsh grasses, mainly *Spartina cynosuroides*, growing on damper ground as high as six feet; in drier situations it is lower, and in some is entirely overgrown with boneset and a few other weeds, mostly of the family Compositæ.

A second circle of treegrowth, back of the willow circle, is composed principally of honey locusts, which are at this moment very conspicuous objects all over the landscape through the golden yellow of all their leaves. The pin oaks are still green, with only the tops and outer tips of branches turning crimson, affording quite an ornament to the monotony of the marsh, which has at present a sombre yellow cast over the higher grasses while the predominance of *Eupatorium* covers the lower grasses with a hoary mantle. The smartweed region is still green but with a strong admixture of yellow and brown shades. The shriveling spatter docks form a sadly withering, shapeless mass of gray and brown tints, though partly trampled down by cattle and thus exposing large patches of open water. The lake is on club grounds, but in hot weather duck shooting is at a discount, and in days like this, when no hunter appears on the scene, we and the birds have the ground all to ourselves.

The air is filled with bird voices; the Blackbirds are seen and heard in all directions. What would the marsh be without its Blackbirds? A dreary ocean of monotony! With them all is life, ever-changing life; a constant coming and going, a uniting and separating, now here, now there, down on the ground, high in the air and even on the lake itself; and withal a kaleidoscopic frolic, produced by only a small variety of individual sounds, perhaps not more in number than the letters of our alphabet, but through their endless and ever-varying juxtaposition, creating a medley of indescribable and unique grandeur.

Just back of us in the persimmon patch there is as busy an army of feeding birds as can be found; they are on the ground, almost covering it. Every now and then, without apparent cause, all go up in a body — and what a cloud they make! They are all Red-winged Blackbirds, old and young, but those in spotted garb outnumber the redshouldered black as ten to one. The persimmon fruit is now ripe and ready to drop. The whirl of the hundreds of wings is heard only for a moment; after a beautifully executed turn the cloud settles on the now leafless trees on which some fruit is still hanging.

Probably the whole manœuvring is carried out only for the purpose to shake the fruit from the trees; the last has hardly settled in the trees when the first already begin to descend, and soon all feed eagerly on the sweet and succulent persimmons lying on the ground.

At once there is another rustle of wings and all go up into the trees. A young Redtail approaches and settles right in their midst. Not a single one of the Blackies leaves the trees; the only precaution they take is that they gain a position above him. They are evidently not a bit afraid of him. His eyes are fixed upon the ground beneath, but he does not find there what he is looking for. The Redwings have monopolized the persimmon grounds to the exclusion of fur-bearing lovers of the tidbit.

From dozens of happy throats comes the pleasing song of the Meadowlark; they seem to take now the leading part in the concert, which the Robin had a little earlier in the morning. Into the tree above us a party of Goldfinches drops for a minute. They rest, but only their wings rest; the tongues do not rest, and though

there are only a dozen birds overhead, one could think there were several scores of them, every one saying something pleasant.

Now a great big bird lazily wings its short way across the spatter docks and alights about two hundred yards away in the smartweeds. It is a Bittern, and for fully three minutes the cautious bird never moves a muscle; with long, out-stretched neck, and with bill pointed skyward, it stands immovably erect until it stoops down into the weeds and disappears. This seems to be the signal for his comrade to join him, and following in the same track through the air, he alights at the same spot.

All the while, since we are here, the border of the lake, the oozy region of the willows and elbow wood, has neither been deserted nor neglected. When we came we found a number of Savanna Sparrows, all dark-spotted birds with rich yellow suffusion about the head. There are several Swamp Sparrows scattered along the edge of the water, and we are treated to a few fine recitations by the Song Sparrows behind the curtain. A Lincoln Sparrow slips stealthily through the debris at our feet and a Snipe, the beauty of whose plumage can never be appreciated after death, nimbly runs away a few yards, sits deliberately down on the oozy ground and for a moment seems to consider the possibilities of escape. Having the example fresh in mind, we also play the Bittern and soon have the satisfaction to see our beautiful Longbill resume its wonted occupation until, frightened by the sudden appearance of a Coot in the smartweeds near by, it jumps into the air and with a nasal sound of leave darts into space unknown.

What is this, sitting in the willows in front of us? We see its back only, but this black-streaked head above a peculiarly yellow neck looks very suspicious. Have we not been looking out for such a distinctly marked bird for a long time? Should it be Baird's Sparrow? What else could it be? Look at the fawn-colored rump, the plain unmarked area reaching high up; indeed, the spotted area of the upper part being more like a saddle, hardly more than an inch in width, all the rest of the upper part being a brownish-yellow of such a peculiar warm tint, that it has no equal. The tail is blackish and slender. Now, how obliging! It hops to another twig and presents its underparts in all their

characteristic beauty: a pure white with a collar of real black adorning the breast in the form of a V; only a few spots on the sides, thus leaving the area above and below the collar a pure white, upon which the pink feet appear in sharp contrast. The bill also is pink and there is only a light streak of brown from the bill down. The dark eye protrudes directly from the yellow face without the least orbital mark, but behind the cheek there is a small wedge-shaped spot of warm brown pointing from the eye. The black crown streaks are seen now in all their characteristic marking.

When the bird thought the sitting had lasted long enough to afford me a good likeness, it disappeared, not to be seen again, but following the water's edge a second one came into view, flying up into a willow. The post-auricular spot, in the other faintly indicated, was here well pronounced and large, but the breast-band had less continuity, especially the median spots were smaller.

Sitting on the branch, its upright carriage and general contour reminded me of *Zonotrichia leucophrys*, the difference in size being hardly appreciable. When a general stampede of the frightened Fringillidæ occurred, this bird joined the rest, alighting repeatedly in willows until lost to sight. While still on the lookout for other members of the noble Baird family, I wondered whether a bird so peculiar in color and marking may vary at different seasons so much that it could be described in books with introductions like "with a general resemblance to Savanna."

But the field is not the place for studying book-descriptions, and the constant changes which go on before our eyes soon absorb our entire attention. The Grackles, all pure and simple *æneus* as far as we can see, are paying an interesting and interested visit to the top-shaped receptacles of the spatter docks, from which the nuts have fallen, thus affording splendid lurking places for different forms of lower animal life. It is a pleasing picture to see the glossy, graceful birds alight on such a curious perch and bending down peep into every nut-hole.

A flutter of dark steel-blue wings set off against a reddish-gray body and a party of Rusty Blackbirds alights in the button-bush near by. They came to rest, and soft, melodious notes escape their throats, as if dreaming of times gone by and places far

remote. One has spied something in the weeds below and, hanging Oriole-fashion from the lowest branch, dips down its head and body for a moment and emerges with a big dragon-fly, which it soon dispatches wings and all.

A fine old Marsh Hawk, in blue mantle and reddish apron, who has been overhauling the marsh with untiring wing ever since sunrise, pays a flying visit to the lake, but the birds do not mind him much; all seem to be on friendly terms with him. Six Mallards which had been lying still amidst the sheltering plants go up with tokens of surprise and swinging around are heading for Horse Shoe Lake, two drakes in front, the females closely in pursuit. A solitary Purple Finch alights in the tree over our head, gives half a dozen calls, a few strains of music, and proceeds. The Savannas which we found along the lake on our arrival have long since disappeared among the grasses of the marsh, but the Swamp Sparrows are getting quite familiar. They are well dressed for this time of the year, bright chestnut and blue-gray colors in conspicuous places, but the bright red cap which they donned before departure in the spring must have been left behind somewhere in the neighborhood of their nests.

From the direction the Mallards took comes the report of a heavy gun, and the Mallards come flying back in haste, but there are only five of them.

In the locust over our head a most startling outcry is now heard, almost like a chicken in great distress. It is a Shrike, which therewith calls the attention of its mate to the hidden foe beneath, saying, no doubt, "Be on your guard, there is one of those monstrous gum-boots who carry thunder and lightning into our tranquil habitation, and shed the blood of the innocent wherever they go." *Kri kri* comes from the neighboring tree, meaning clearly: "I see him, I keep an eye on him; better let us go"; and off they go.

Turning away from the lake we follow the slough, a narrow ditch inclosed by a wide border of flags, several feet high, deep green below, but cinnamon on the tips. This is the home of the Marsh Wrens, and one, with a conspicuous superciliary, almost white and sharply contrasting against the plain dark pileum comes up into a bush and sings its simple tune, keeping

time with the tail, which goes rhythmically up and down. Several more of the Longbills come into sight but only one of the little Shortbills has the courage to show its streaked head above the sheltering flags.

Since we advanced through the high marsh-grass, many small birds have jumped out, not exactly from under our feet, but within two or three yards, and after a short, nervous flight, in which they alternately spread and fold the pointed tail-feathers, sink down and out of sight among the wavy yellow blades. Although the flight is short, a quick and practised eye can catch the yellow hue of neck and head and, together with its diminutive size, we know him well,—it is our friend the Leconte Sparrow. But presently we shall be treated to a novel sight. Five of the beautiful creatures adorn the leafless branches of a little hawthorn tree, eight feet in height and raising its head only a few feet above the tips of the surrounding grasses. A sixth one comes up to take a seat; it is now their time to take an airing and a sunning, the only hour of the day when they remain thus exposed to view for any length of time. We pass a few more of these isolated thorn-trees, standing in line like sentinels along the slough, as if to keep the flags from marching upon the domain of the grasses. Each one has at this hour a small contingent of Lecontes, who after paying a visit to the watery region of the flags return to dry and preen upon the branches. But our hour is over.

NOTES AND EXTRACTS FROM A LETTER OF EDWARD HARRIS.

BY GEORGE SPENCER MORRIS.¹

INCIDENTS connected with the lives of the great naturalists of a past generation must always be of interest to those who seek to follow in their footsteps in after years.

¹ Read before the Delaware Ornithological Club.

It is with much pleasure that I have from time to time observed in the pages of 'The Auk' brief anecdotes, extracts from letters, prints of old portraits, etc., which furnish us with additional information concerning the lives of Audubon and other noted ornithologists who have died.

The name of Edward Harris is one which deserves to be more widely known in ornithological circles than it is. Harris's Sparrow, Harris's Woodpecker, etc., bring it before us in the Check-List, but there are comparatively few who know aught of the man for whom these species were named.

It is perhaps true that Mr. Harris should not be ranked as a great naturalist, but it cannot be denied that he played a very important part in the advancement of scientific knowledge in the past generation by the encouragement and practical assistance which he frequently rendered to his fellow workers, and especially to Mr. Audubon.

Between these two men there was a bond of strongest friendship. In the writings of Audubon we find frequent references to Mr. Harris; and the great naturalist rarely mentions his name without coupling it with some expression of affection or admiration.

They were companions on several of Mr. Audubon's important ornithological expeditions, notably that of the year 1843 into the far northwest by way of the Missouri River with the Yellowstone region as a point of final destination.

During the journey Mr. Harris wrote long letters, as opportunity occurred, to his brother-in-law, Dr. John J. Spencer of Moorestown, N. J.

Dr. Spencer was a great-uncle of the writer. Through the kindness of his daughter, Mrs. Samuel Stokes, I came into temporary possession of one of these letters. It is written in an almost minute but very firm hand; it is yellow with age, and in some places is hardly legible. It is simply a diary of each day's doings extending over a period of almost two weeks. The letter is long and much of it is not of sufficient ornithological importance to warrant its complete publication in these pages. There are, however, certain paragraphs which I think cannot fail to interest the readers of 'The Auk,'—as for instance the description of the discovery of Harris's Sparrow, and the impressions received

on first hearing the song of the Western Meadowlark. The letter gains an added charm through its frequent references to Mr. Audubon and Mr. Bell—the latter being one of the party.

I have quoted verbatim such passages as I thought might be of special interest to ornithologists, and have briefly summarized the remaining portions so that a fair idea of the whole may be gained.

The letter opens as follows :—

“Missouri River
May 19th 1843.

“My dear Doctor—

“I wrote you a few hasty lines yesterday by Mr. Laidlaw—the Company’s superintendent at Fort Pierre, who was on his way to St. Louis with four Mackinaw boats loaded with buffalo hides. I now commence a letter to be sent by the trapper from Fort Pierre which we hope to reach in six or eight days. Since I wrote from Indipendence the most important event that has occurred has been my discovering a new Finch—a larger bird than the white-crowned sparrow which it very much resembles in the general markings of the body—but the head & throat are black with an ash-colored patch on each side of the head. On looking at my diary I see I wrote to you from Bellevue—when I must have mentioned this new bird, but we feared that it might have proved the male of Townsend’s Finch, with which it agrees in measurements exactly—a female only has been procured of that bird (Townsend’s) but very fortunately only three days ago I succeeded in shooting a female which corresponds exactly in markings with the male excepting that the tints are rather lighter & the black not quite so widely diffused.

“Bell has also found a Vireo which is undoubtedly new. The rare birds which we have shot are the Clay-colored bunting—(F. Pallida), Yellow-headed trupial (Icterus Xanthocephalus), Lincolns’ Finch—Chestnut-Collared Lark Bunting—(Emberiza Ornata),—Lark Bunting—(E. Grammaca).

“Our opportunities for shooting now that we have left that part of the river where wood could be found ready cut for sale, are not at all equal to our expectations; instead of stopping two hours before sunset to cut for the next day, as we had been

led to believe would be the case, we stop wherever we can find good wood and never less than twice a day, more frequently three times, and then only from thirty minutes to an hour at a time, and frequently in a bottom that has been overflowed and all the game driven out of it; the walking too so bad that it is scarcely worth wetting our feet for the poor chance before us. It is only when we are detained by a high wind or an accident to the boat that we can get a regular hunt.

"We have procured very few quadrupeds, a red squirrel that is rather rare and a black squirrel that may be new are the only ones. Mr. Audubon shot a wild turkey a few days ago,—the only one we have procured, and that would have been lost had it not been for 'Brag.' The bird was only wing broke and soon ran out of sight and hid in a thicket, but 'Brag' made a beautiful point at it and I shot it with number 10 shot; it was a female; it made us a good dinner and a fine skin.

"Our last accident,—the burning out of two plates in one of our boilers, which I mentioned in yesterday's letter,—detained us three days, we only got off this morning.

"In a few days more we shall almost entirely lose the timber, a few straggling trees on the bluffs of the prairies will be all we shall see and we must depend principally on the drift wood we find on the sand bars which is of very inferior quality. We now use green ash whenever we can get it; when it is not to be had dead cottonwood is the best we can procure.

"Elks are abundant here and have been for the past week — & hares also, but we have seen neither, the elks and deer are driven before us by the noise of the steamboat, & where the shores are wooded we never see them. The hares are in the high prairies which we have seldom time to get to when we stop. Only one deer has been killed since we started.

"20th. It rains this morning and our prospect for the day is rather dull. Our mode of life is rather tiresome to us who are impatient for something to do, and you may see by the tremor of my hand that it is difficult to write while the boat is in motion," etc.

Mr. Harris here dwells somewhat upon the monotony of their daily life, enlivened only by the occasional sight of game along

the shore. He speaks also at some length of the Indians to be found in the neighboring regions. Mr. Harris was apparently no great admirer of the Red Man and refers with a slight touch of sarcasm to Mr. Catlin, who in his enthusiastic admiration of the Indian had spoken of him as "Nature's Nobleman."

The letter, continued on the 21st inst., tells of the first appearance of buffalo and gives interesting descriptions of their habits and movements. From this time on they were comparatively abundant. The letter then continues:

"Another rare bird — Say's Flycatcher has been added to our list, also *Pipilo Arcticus*, — the new Towhee Bunting, which you will find figured in Mr. Audubon's small work. For the last few days we have seen immense quantities of the nests of the cliff swallow in the lime stone rocks which compose the base of the high prairie hills, and where they jut upon the river are perpendicular cliffs, but there are no birds to be seen and we fear they have all been killed by a severe gale we had on the 14th when the thermometer fell from 76° to 43°. Since that gale we have seen very few swallows of any kind."

Under date the 22d Mr. Harris tells of the increasing difficulty in securing wood for the engine. Buffalo are spoken of as becoming more abundant, while a war party of Indians was seen on the east bank of the river. Then comes the following short paragraph which is of interest to ornithologists as being the first mention of the Western Meadowlark. "We have seen today the Arkansaw Flycatcher and a Meadow Lark which must prove to be a new one, its note is so entirely different from ours, though as far as we have been able to observe it the markings and habits are very similar."

Mr. Harris then discourses at some length upon the habits of the buffalo, and especially upon the wanton destruction of them by Indians and Whites. Upon the 24th the letter continues as follows: "The wind blew hard this morning, and it was evident the boat could not be got off for some hours. Bell and I went ashore. We procured some excellent birds — Red-shafted Woodpecker, — Say's Flycatcher, — Arkansaw Flycatcher, — Lark Finch & several of the new Meadow Larks. I still insist upon its being new, although it is so much like our own birds that we cannot

from the books establish any specific difference, — though I have no doubt when we can place a number of them alongside of the common one there will be something to distinguish them. It is impossible that the same bird in different parts of the country can have notes so decidedly different as to strike all of us as new notes. But as we cannot set these notes down on paper and as no bird has yet received its specific character from its note alone we must wait patiently for some stronger development before it can be published. We saw the Lazuli Finch, a very rare bird, for the first time. It is worthy of remark that all the rare birds we have found have a range much farther east than has been heretofore assigned to them. Some of them have not been found before on this side of the mountains. This gives us great hopes of doing more than we expected in the bird line — as for the quadrupeds the chance of securing them while ascending the river does not equal Mr. Audubon's expectations. We hope to make it up when we reach the Yellow Stone and on our way down the river."

The remaining notes for the 24th inst. describe the movements of the neighboring herds of buffalo and tell of the habits and characteristics of the Townsend's hare, Mr. Harris and Mr. Bell having observed one of these animals while on shore. The 25th was a cold and rainy day, the time being spent almost entirely in the cabin of the steamboat. The journal for the 26th is given over mostly to a description of the geological formations of the county together with interesting remarks on the habits and characteristics of the black-tailed deer, prairie dog, etc. At five P.M. they left the boat for the purpose of going across an isthmus which separated two bends in the river, their plan being to meet the steamer on the farther bend the following day. After tramping some distance and having killed a fine buck black-tail, they camped for the night and had a supper of venison.

The 27th and 28th are descriptive chiefly of the Indians, who seemed to be none too friendly in their demonstrations, having several times fired at the boat. A short stop was made at a place called Fort George. They here met a Mr. Cutting, the brother of a gentlemen with whom Mr. Harris had previously travelled in Europe.

Under date the 29th he writes: "Major Hamilton and Mr. Audubon walked down to the Fort after breakfast and I followed in about an hour. I very fortunately took my cane gun with me and shot by the way two Black-headed Grosbeaks, a bird which has not before been found this side of the table lands of the Rocky Mountains, which is the case with a number of the birds we have found. Mr. Audubon,—Bell,—Squires and I walked two or three miles across the prairie in the afternoon to a village of prairie dogs which Bell had discovered in the morning." Mr. Harris then speaks entertainingly of the movements of the interesting little animals and refers to the great difficulty in shooting them.

On the 31st they reached Fort Pierre, a point on the river which they had long been striving to gain. No further points of ornithological interest are referred to in the letter. The plant life of the region is, however, described at considerable length for the benefit of Dr. Spencer, to whom the letter was addressed, he being a botanist of some note. The letter was left at Fort Pierre to be taken down the river by the next trappers who were going in the direction of civilization. The last entry is made on June 1, just before the boat starts on up the river towards the Yellowstone, that being the final destination of the party.

BIRD MIGRATION AT GRINNELL, IOWA.

BY LYND'S JONES.

II.

FALL MIGRATION.

THE fall migrations differ from those of spring in certain particulars. It is not so simple a matter to study the southward movement of the birds, but rather one requiring a great deal of time, unlimited patience, and a speaking acquaintance with the

birds in all sorts of dress. For almost all birds are in their plainest attire on their journey southward. Then birds are wary and timid, instead of bold and fearless. No songs announce their arrival. All is quiet.

The majority of records in spring are of arriving birds. In the fall they are of departing birds. No records are more difficult to make accurately than those of the departing birds. A great deal of time was spent in the field in the fall, but the records are always fewer than those of spring.

We have seen that the weather greatly affects the spring movements of the birds, severe and adverse winds combining with inclement weather to retard the northward movement. In the fall the weather has an opposite effect. Late in the fall this is more apparent and of much more significance than early.

The charts for the fall migrations are made on the same general plan as those for the spring migration, with the addition of a weather record at the top, represented by a sinuous line. The downward curves indicate the occurrence of a falling temperature and cold northerly winds. A rise in the line indicates a rise in temperature and southerly winds.

A study of the charts makes the relation of the bird movements to the weather clear. Each dip of the line representing the weather is accompanied by a corresponding activity among the birds. There is either an influx of more northern species or an efflux of summer residents, or both combined. Usually it is of both combined. Frequently the movement follows the unfavorable weather; sometimes it slightly precedes it. Warm days and south winds retard the southward movement instead of accelerating it, as in the spring.

August is marked by almost uniformly warm weather, there being no marked changes from warm to cold. Yet some birds move south even in August. These are the Yellow-breasted Chat and Yellow Warbler, with a possible migrant or two from the north. The movement is not well marked.

Our first evident movement occurs early in September, when the first breath of winter is felt. Then there is not only a marked efflux of summer residents, but an influx of northern species. It will be noticed that the birds moving at this time are those which

came latest in spring, for the most part. A glance at the accompanying charts and at those of the spring migration, will reveal the fact that the last great movement of the spring of 1886 and 1889 occurred later than that of other years, and that the first movement in the fall migration for these two years is correspondingly late.

A second movement occurs about the middle of September, followed by a rather scattered movement until late in the month or early in October, when another definite movement occurs. A middle of October movement is apparent, but it is not so well marked as the others, either earlier or later. There is really but one movement in November, but it is often much scattered, and may occur either early or late, according to weather conditions. This movement is marked by a diminution in the number of the resident birds, as well as of some of the winter residents.

These later movements seem to bear no relation to the spring movement whatever, but are largely influenced by the weather. The last movement is manifestly due to weather conditions, the movement being retarded by warm weather, and occurring only when the next storm sweeps in from the north.

We have seen that certain of the spring migrants may be grouped together as regular migrants at a certain time each year, being always or nearly always found moving together, at a certain time, relative or absolute. No such grouping is possible in the fall migrations. Each species seems to suit its own convenience in the matter of its southward journey, having no regard for any company but its own kind.

In the spring, the last movement of the season was by far the largest in the number of species moving at one time, while the first movement was of very few species. The fall movement is just the reverse, but with a very much less tendency toward any massing of species at any time. The whole movement is far more scattering and irregular as regards definite dates of movement.

It can hardly be said that there are any definite dates of greater activity of movement, as we have seen to be true in spring. In general there might be said to be more birds moving in early September than at any other time. Early October is

also well filled with moving birds. But these periods of activity cannot be compared to the March and May activity. They are weak and scattering. The migrants from the north are so few, compared with the spring migrants, that they make a poor showing among the summer residents.

September is the month of greatest activity in the fall migration, nearly half of the records of any year occurring in that month. The remaining records are about equally divided between October and November, with a scattering few in both August and December, which may be regarded as unusual, if not accidental. While the bulk of moving individuals is to be found in September, that month's movements are in no way comparable to the great May movement. It is not condensed, but scattered over the entire month, as it was not in May.

With the exception of a few species, and of the more common migrants from the north, the birds do not move in such masses in fall as in spring. They seem to grow gradually less in numbers, until the last one journeys southward. There is a marked exception to this in November, when the first driving snow-storm sweeps in from the north, bringing the Ducks and Geese in clouds, accompanied by circling flocks of Cranes and Pelicans. It is well worth frosted ears and cold feet to watch the huge flocks and droves scurrying before the storm blasts, seeking a shelter behind some woods in which to gain a hurried rest. Often the night air is resonant with the notes of the birds which are journeying to their southern winter homes. Sometimes they seem to become confused by the bright lights of the city, and fly about overhead for some minutes before moving on. Such occurrences are always during a dark night, or in thick weather. I have noted the water birds in such situations more often than any other birds.

The last individuals of any species noted in the fall migrations have been young of the year. After the bulk of the species has departed, it has been almost impossible to find old males, or even old females; while any males at all are very scarce. Hence, I conclude that the order of departure in fall is much the same as that in spring—the old males leading, followed by the young males and old females, the rear being brought up by the young females.

[illegible]

Some species seem to be changed in habits in the fall migration, as the Myrtle Warbler and Harris's Sparrow. In the spring we find them in the woods and brush-lands, but in the fall they are largely confined to the fields and hedges separating bare fields. In the spring the Myrtle Warbler bears the other Warblers company, but in fall he seems to prefer the company of the Sparrows, always being found in company with the Chipping Sparrow. The Harris's Sparrow is found in the near vicinity of houses or barns in spring, but is never seen there in fall, preferring the hedge-rows.

Some birds are more numerous in fall than in spring, and some regularly found in spring are just as regularly not seen at all in fall. I think that it has never been true that a species has been found in the fall which has not been noted in spring.

A further reference to the charts will reveal the fact that when the spring movement is hurried and the stay short, the fall migration will be more leisurely and protracted. This applies to some species of birds which do not nest here, but pass further north, but it is not true of all such.

We thus see that the two movements differ in two very important particulars: the one is noisy and full of life, the other quiet and unobtrusive. The one is in gala-day attire, the other in the somberest dress.

III.

BIRD MIGRATION AT OBERLIN, OHIO, FOR 1894.

Probably no better opportunity will ever be afforded for a direct comparison of the migrations in Iowa and Ohio than the present one, so I will briefly discuss the migration of 1894 as a type of what we may find at Oberlin.

The village of Oberlin lies twelve miles south of Lake Erie, and about midway between two rivers twelve miles apart, which flow northward into the lake. Except the immediate river banks, which are bluffy, the region is flat and was originally swampy with a heavy growth of timber. At present nothing but the fragments

of swamps remain in the scattered timber patches, or along streams near the lake. The timbered tracts consist of tall trees skirted by a little fringe of brush, or second growth sprouts, lacking the true brush lands of Iowa. The trees composing the woods do not materially differ from those of Iowa except in being much taller and more slender, without low branches as a rule.

While the region is an excellent one for the nesting of many species, it is not adapted to migration routes of many other species, they following the river courses in preference to crossing the flat higher lands. Scarcely any water birds are seen away from the rivers, which are not easily accessible in early spring.

The accompanying charts differ from those already explained only in covering both spring and fall migrations for one year instead of a single migration for several years. Hence, the line or lines following the name of any species represents the whole time during which the species was present during the year, unless it is a resident or winter visitor.

These charts give an excellent idea of the waves of movement during the year. Not until March is any movement perceptible. Then the season opens with the arrival or increase of four species, followed in a few days by five more, these followed a little later by four more, making a triple wave of thirteen species. This wave accompanies the first warm wave of March.

Omitting three species which were probably overlooked, and therefore belong to the first wave, the next wave occurred about the first of April, when five species arrived and one departed. Then nearly three weeks passed without any perceptible movement, due to continued damp and chilly weather and northerly winds.

A warm wave about the 20th of April caused the movement of twenty-seven species, seventeen of which were arrivals and four departures. Then followed the great May movement — somewhat more scattered than we have seen in Iowa, but none the less marked — of forty species, all but three of which were arrivals.

The last movement occurred wholly in May, and was more scattering than the one preceding it. With the exception of one species, it was composed of departing migrants.

The spring migration thus closely corresponds to the same migration in Iowa, but with no movement in February and none in June. Yet it must be admitted that movements do often occur in February. There are fewer well defined waves, and more scattering records, except early in March and early in May.

Making allowance for the slight differences in the bird fauna of the two places, the birds forming these waves are of about the same species as those forming the corresponding waves in Iowa. The presence of the Song Sparrow, Robin, and Bronzed Grackle all winter, and the absence of Ducks and Geese in the migrations, would make a change in the individuals composing the first wave, in any case.

There is a tendency towards earlier movements at Oberlin than at Grinnell, especially early in the season, the difference not being so apparent later. The first wave is often later, however, followed more closely by the second wave.

With the small amount of material at hand it is not possible to determine if there are any such groups as were found in the Grinnell migrations. Notes taken during three years seem to indicate that there are, but composed of somewhat different species.

Here, as in Iowa, the most of the birds arrive in May, a little more than one-half of the whole movement occurring in that favored month. April is also well filled. March suffers from the lack of water birds. May absorbs the June movements.

Were it possible to make the round of the whole country, it is probable that the percentages for the different months would closely correspond to those for Iowa. The nearness of Lake Erie, and the presence of rivers both east and west, have combined to make some important records wanting.

The nearest routes of maximum migration across the State lie a considerable distance westward, where there is a much less expanse of water for the birds to cross to the Canada shore. Hence, ours is a relatively small migration. It does not compare with the Iowa migrations in point of the number of moving individuals. Scarcely any birds can be called at all abundant at Oberlin. Many are common.

I have noticed that the migrants at Oberlin remain rather longer than the same species did at Grinnell, and that more of

them sing during their stay. There does not seem to be the rush and hurry among the migrating birds at Oberlin that was so evident at Grinnell. I have wondered if the nearness of the lake may not in part account for this more leisurely journey and happier mood. It is certainly true that not a few of the species which do not nest at Grinnell are found nesting on the lake shore. Such close proximity to the summer home might well cause greater ease of mind, and thus result in the changed conditions which we have seen. It may be, however, that the birds are only resting longer in order to be more fully prepared for their long flight across the lake. As I write, the Blackburnian, Black-throated Green, Chestnut-sided, Black-poll, and Bay-breasted Warblers are singing. I never heard them at Grinnell. Not one of the transient Thrushes ever condescended to sing for me at Grinnell. Only the Hermit Thrush refuses to do so here.

Lack of opportunity to study the bird life of the lake shore carefully makes it impossible to speak intelligently, at this time, of the direct influence of the lake upon the migrating host. That it is considerable is made evident by the secondary effects already noted. There can be no question that it acts as a barrier to the further movement of some of the birds, causing them to nest on its south shore. This is made evident by the immense numbers of nests to be found, at the proper season, within a very restricted area in the brush, trees, and swamps skirting the shore. In a few hours I have found more than a hundred nests containing either eggs or young, within a space of a few acres. I probably discovered not more than one in ten of the nests actually in the area.

Turning now to the fall migration, we note at once that there is a marked tendency for the earlier spring arrivals to remain later in the fall, and for the later spring arrivals to return south earlier. But there is no such definite order of departure as is apparent in the spring. Irregularity is the rule. This is especially true of the transient visitors. The species which migrate earlier in the fall are more irregular than those which migrate later.

The order of departure of the different species does not materially differ from that at Grinnell. The late August wave

is rather larger, being composed of five departures and one arrival, with a decrease in numbers of five species. An early September wave, consisting of five arrivals, six departures, and a decrease of six species, is well marked from a late September wave which consists of five arrivals, sixteen departures, and eight decreasing species. There are also two waves in October: an early one including six arrivals, thirteen departures, three increasing and six decreasing species; and a late one consisting of one arrival, eight departures, and four decreasing species. The early November wave is composed largely of decreasing species, all but two of which depart late in the month. The early wave is composed of twelve species, and the late one of thirteen.

It thus appears that September is the favorite month for the fall migrations, preference being given to the latter part of the month. In point of the number of moving species, there is very little difference between September and October; but moving individuals are far more numerous in September than in October. Eleven species were moving in August, forty-six in September, forty-one in October, and twenty-five in November. Thus November stands in much the same relation to September that March does to May, April corresponding to October. The relations of the movements by months may be more clearly seen in the following table. By species common to any two months is meant those found moving in both months.

| | | | | | |
|--------------------------------------|---|---|-------|-------------|----|
| Species common to March and November | | | | | 12 |
| " | " | " | " | " October | 5 |
| " | " | " | April | " November | 5 |
| " | " | " | " | " October | 15 |
| " | " | " | " | " September | 12 |
| " | " | " | " | " August | 3 |
| " | " | " | May | " November | 2 |
| " | " | " | " | " October | 9 |
| " | " | " | " | " September | 29 |
| " | " | " | " | " August | 2 |

It is a little singular that species which do not arrive from the south until May or April should be among the last to go south in fall. Yet there are sixteen such. Three of the species

which arrived in April departed in August. These irregular species seriously complicate the migrations. They refuse to be worked into any table of the movements of the birds.

I cannot forbear glancing hastily at the 1895 migrations, because they present some interesting characters. Great things were expected of them, and greater things have occurred.

As early as late January the Robins were becoming numerous and Grackles were seen. But then the long delayed winter came in earnest, and tarried until March. It was followed by damp and chilly weather, spring not arriving until April. The Robins and Song Sparrows braved the cold, but the Grackles left. Not until March 18 did we see the first arrivals, and the Bluebird was not among them. One was seen on March 23, one on the 29th, three on April 5th, and one—the last one—on May 1st.

All of the earlier arrivals have been less common than usual, while some have not appeared at all. The later arrivals are on time, but all others have been late. There have been no well-marked waves of migration.

There could be no better illustration of the effect of the weather upon the migrations than this season has afforded.

In drawing comparisons between the Grinnell and Oberlin migrations, nothing has been more strongly impressed upon my mind than the influence of local contour of country upon the migrating birds. That station which lies away from even small water courses, whose trend is north and south, is less favored by the birds. Species which are tardy at Oberlin may almost always be found at the rivers. I am convinced that the differences between the two places can be largely attributed to the difference in location of the two places, with reference to water courses, allowing for the proximity of the lake only a little.

With more time and increased facilities for travelling to the rivers and lake, there cannot fail to result a more complete record of the bird fauna of the region, and a closer correspondence to the Grinnell migrations.

A REMARKABLE FLIGHT OF PINE GROSBEAKS
(*PINICOLA ENUCLEATOR*).

BY WILLIAM BREWSTER.

TOWARD the end of November, 1892, Pine Grosbeaks appeared in eastern Massachusetts for the first time in three years. My earliest date is November 21, when I heard a bird in Concord, Mass. Soon after a flock was met with in Ipswich, and by the first week in December the birds had been reported in large numbers from Belmont, Wellesley Hills, Fitchburg and other towns.

On the 21st of December, twenty-seven Grosbeaks, the first I had seen in Cambridge, visited a red cedar behind our house, and spent half an hour feeding on the abundant berries, but with the exception of these birds I saw no more in the city until the second week in January. Reports kept coming in, however, of their appearance in unusual numbers in the surrounding towns, and of their great increase in number during the first weeks in January. Flocks of over a hundred birds were seen in Wellesley Hills and in Arlington.

On January 9 I met with a flock of about forty-five in some spruces not far from the centre of the city, and near the same place I found, next day, a flock of fully one hundred and twenty-five. The owner of the grounds said that the birds were first seen there on the morning of the 8th; that during this and the following day they devoted themselves to some white ash trees immediately about his house; and that by the afternoon of the 9th they had stripped these trees of their fruit.

When I first saw them they were assembling in a large white ash which overhangs the street. This tree was loaded with fruit, and with snow clinging to the fruit-clusters and to every twig. In a few minutes it also supported more than a hundred Grosbeaks who distributed themselves quite evenly over every part from the drooping lower, to the upright upper, branches and began shelling out and swallowing the seeds, the rejected wings of which, floating down in showers, soon gave the surface of the

snow beneath the tree a light brownish tinge. The snow clinging to the twigs and branches was also quickly dislodged by the movements of the active, heavy birds and for the first few minutes it was incessantly flashing out in puffs like steam from a dozen different points at once. The finer particles, sifting slowly down, filled the still air and enveloped the entire tree in a veil-like mist of incredible delicacy and beauty, tinted, where the sunbeams pierced it, with rose, salmon, and orange, elsewhere of a soft dead white,—truly a fitting drapery for this winter picture,—the hardy Grosbeaks at their morning meal. They worked in silence when undisturbed and so very busily that at the end of the first hour they had actually eaten or shaken off nearly half the entire crop of seeds. Some men at work near by afterwards told me that this tree was wholly denuded of fruit by three o'clock that afternoon when the birds descended to the ground and attacked the fallen seeds, finishing them before sunset.

The next day (January 11) the city was fairly in possession of the Grosbeaks. The sound of their piping was constantly in my ears whenever I stepped out of doors, and I rarely looked out of the window for a moment without seeing a flock sweeping past in long, undulating curves. Mr. Hoffmann writes under this date: "In the afternoon there was a flock of over sixty-five birds in the college yard, feeding in the snow under the ash trees. The birds on the plank walks hardly moved to let the men pass, and one actually lit on my hat as I stood beneath the large ash tree. Numbers were feeding outside the yard between the car-tracks, and on the sidewalks. Many people were watching them."

Fully a mile from the college, but very near the trees which the birds had stripped on the previous day, stand two large ash trees in which, shortly after eight o'clock, I found over two hundred Grosbeaks feeding. Both trees were thickly hung with seeds at this hour, but the birds had thinned the clusters on the upper branches and were fast working downward. At half-past three that afternoon, when I visited the place again with Mr. Faxon, not a seed remained on either tree. The snow beneath was completely covered with fallen seeds as with a light brown carpet, and the Grosbeaks were all there eating them. By dividing the flocks into halves and counting quickly, we got a very close

approximation to the total number which we made two hundred and twenty-five. There were perhaps twenty-five to forty more scattered about on neighboring spruces and the roofs of houses.

A part of the flock was distributed over the sidewalks for a distance of several rods, feeding on the fallen seeds. As we advanced slowly the Grosbeaks flew between or alighted on the wires of the low fence within arm's reach. One even attempted to perch on my companion's shoulder, but he moved at the critical moment and it glanced to one side. Over the fence where most of the flock was feeding, the snow was so light and feathery that the birds sank into it deeply and wallowed rather than hopped from place to place. They appeared to enjoy this, and often fluttered their wings in such a way as to scatter the snow above and around them as bathing birds scatter drops of water. Many flying down from the trees above struck the snow with such force as to plump in quite up to their necks, when they stood thus for half a minute or more.

During the same day a flock of fully three hundred Grosbeaks were reported from the Botanic Gardens, equally distant from each of the two flocks described above; if the birds were as numerous in other parts of the city, Cambridge must have harbored several thousands.

The next morning the great flock at the two ash trees had decreased to a hundred birds, who were all on the ground finishing the fallen seeds. They began leaving the place in small parties while I was watching them, and at four o'clock that afternoon only about twenty-five remained.

On the 13th, I spent most of the forenoon in the cedar-grown pastures which encircle the suburbs of Cambridge. I heard a few Grosbeaks piping but could not find them. On examining the cedar trees, I could not discover one that had more than a few scattered berries. A report from Wellesley Hills, under date of January 14, showed a similar departure of the Grosbeaks from that region, and a like explanation,—the stripped condition of the food-bearing trees.

During their invasion of Cambridge the Grosbeaks seem to have concentrated their attacks on the white ash trees, and to have taken these successively, although the smaller flocks foraged

more or less widely and generally among all the trees of this species in Cambridge.

The celerity with which the Grosbeaks stripped a large ash, laden with crowded clusters of the brownish, pendent fruit, was surprising, even when due allowance is made for the great number of birds. They distributed themselves pretty evenly over the entire tree, although, as already stated, they usually attacked the upper branches first. Each bird worked busily and silently and, when the fruit was abundant, moved about but little, merely bending forward and downward for a seed, and after this had been sheared of its wings and eaten, reaching for another in the same manner without changing its foothold. I have watched over a hundred birds thus engaged for a minute or more without hearing a sound save the light crackling rustle of the seeds as they were rolled in the powerful bills.

Next to the ash trees, the Grosbeaks preferred the Norway spruces, the terminal buds of which they appeared to relish greatly. The snow under every spruce of any size in the area which the birds invaded was thickly strewn with fragments of these buds. Mr. Walter Deane, who made a microscopic examination of these small fragments, and also of the branches of the trees themselves, found that the birds ate only the nucleus, a soft, greenish mass of tissue, scarcely larger than the head of an ordinary pin, and lying at the base of the terminal or axillary buds. This nucleus may be that of a future branch, cone, or staminate blossom. The bird bites or breaks off the bud about midway between its extremity and base, and picks out the nucleus, leaving its protecting outer scales on the trees. The fragments found under the trees consist of the terminal halves of these buds, either intact, or broken into their component scales.¹ The fruit of the white ash is split along the middle of the flat sides from the base well towards the extremity and sometimes into two halves.

The Grosbeaks, as I have already said, sometimes fed without making a sound except the cracking or crunching of their food, but usually a low murmuring or whimpering whistle, audible

¹ Mr. Deane has published some notes on this subject in the *Botanical Gazette* (Vol. XVIII, No. 4, April, 1893, pp. 143, 144).

only a few rods away, ran through the flocks at frequent intervals. When a number of birds took flight suddenly and simultaneously this sound was often given by most if not all of them at once. It resembles the whistling of the wings of a flock of Carolina Doves and also, if the air be still and the birds very near at hand, the rolling flight note of the Snow Bunting. The loud *peer* of the Grosbeaks is not unlike another call of the Snow Bunting when it is heard distinctly, but at a distance it may be easily mistaken for the cry of a Blue Jay. It seems to serve both as an alarm note and to call the scattered members of a flock together, and it is sometimes used during flight, but the usual flight call consists of two, or sometimes three notes, given quickly in a descending series like those of the Greater Yellow-legs (*Totanus melanoleucus*) — which they slightly resemble in tone as well as form. This call may be written “tēē-t’yēh, tēē-tēē-t’yēh,” or “tēē-t’yēh-tē.” A fourth call defies rendering by letters, but may be fairly described as a loud rich chuckle or chuckling whistle of from two to four syllables. This I usually heard from a single bird perched on the top of a tree near some tempting supply of food to which, as it seemed, he was trying to attract the attention of distant comrades. It was not often used. Some birds which I noosed made, when first caught, a rather loud, continuous, squealing or squawking outcry very like that of a Robin in the clutches of a Hawk. A sixth vocal sound, which completes the list, was a low, harsh, grating cry, uttered only, I believe, when two birds were quarreling.

The Grosbeaks often fell out over some choice morsel of food and indulged in a brief, harmless squabble threatening each other with open bills and half-spread wings, and occasionally giving or receiving a feeble peck or two. In the main, however, they were unmistakably gentle and amiable in disposition, placid if not phlegmatic in temperament, social and affectionate in their relations to their own kind, and in their attitude towards man almost wholly free from fear or even suspicion.

Nevertheless they were subject to frequent and sudden panics. The crack of a whip, the barking of a dog, the slamming of a door, or even so slight a sound as the click of a camera shutter, frequently caused them to scatter, and dash off in the wildest

confusion. Sometimes these alarms had no obvious cause. The larger the flocks the oftener they occurred. The great flock at the two ash trees started, on an average, once a minute. Loud, continuous sounds did not seem to excite them, and they were quite as indifferent as the House Sparrows feeding with them, to the near passage of horse cars, sleighs, and the other traffic of the busy street.

A flock of about a dozen Grosbeaks fed for a day or two in a flowering apple (*P. parkmanni*) growing in our garden. This tree is only five or six feet high. Its apples, which are scarcely larger than large currants, cling to the twigs all winter and had never been previously eaten by any birds except Waxwings (*Ampelis cedrorum*). There had been an unusually large crop in 1892, and the branches of the little tree were literally crowded with the tiny fruit. The Grosbeaks did not eat the pulp, except perhaps incidentally, in small quantities, but crushing the apples they squeezed out the large seeds, of which each fruit usually contains two, and swallowed these. The pulp was dropped, or when, as was frequently the case, it adhered to the bill, shaken off, or removed by rubbing the bill against a twig. As a rule the apple was bitten off a little below the stem so that its basal portion with the long stem remained attached to the tree.

House-sparrows, who had never before molested the apples, gathered when the Grosbeaks began their raid and watched them. By the end of the first day I saw several Sparrows crushing the fruit between their mandibles exactly in the manner of the Grosbeaks, but I think they ate the pulp as well as the seeds. They afterward finished what the Grosbeaks had left.

I snared several of the Grosbeaks which frequented this tree, using two joints of a light fly rod and a running noose of twine. It was not always an easy task, for the wind blew the noose about, and the birds seldom remained perfectly still for more than a second or two at a time, although they showed not the slightest suspicion or nervousness, allowing the coarse brown twine to rub against their bills and the end of the pole to strike their crowns without, at the most, doing more than to push the noose aside, or to bend their heads to avoid the pole. I actually caught one without alarming the rest of the flock, but usually the

screams and flutterings of my victim started his companions at once. They would return, however, as soon as I walked away, and sometimes while I was still engaged in freeing the captive bird from the noose. One Grosbeak which escaped from my hands after being snared would not again permit me to get the noose near him, and even, I thought, tried to warn his companions of their danger; nor was he wholly unsuccessful, for his alert behavior and loud cries often caused them to stop feeding and more than once when he took wing they all followed him.

The remarkable numbers and tameness of the Grosbeaks which visited Cambridge led me to suspect that they formed part of a much larger body of birds which had come an unusual distance and spread over an exceptionally wide territory. Hoping to get light on these points I sent circulars throughout New England, to the Middle States, as far west as Illinois and Wisconsin, and as far north as Canada, asking for information as to the local presence or absence of the Grosbeaks during the winter of 1892-93, their numbers, and the approximate dates of their arrival, departure and greatest abundance, the proportion of adult males to females and young, and their food. Through the kindness with which these circulars were answered I am now able to trace with some degree of apparent accuracy the route followed by the majority of the birds and the total area covered by their flight.

Before doing this, however, it may be well to consider briefly the biographical matter furnished by my correspondents. This relates chiefly to food and the ratio of bright males to dull-plumaged birds. The tables given below summarize the evidence on these two points. It will be seen on examining Table I that the chief food of the Grosbeaks consisted of the seeds of the white ash (*Fraxinus americana*), and of the apple, the fruit of the apple and of the American and European mountain ash (*Pirus americana* and *Pirus aucuparia*) and of the buds of the sugar maple (*Acer saccharinum*), and Norway spruce (*Abies excelsa*). The birds apparently attacked the fruit and buds of other plants only when the supply of their favorite food was exhausted.

That the birds ate the seeds of the apple is clearly shown, and it seems probable that they ate the pulp as well. One corre-

spondent (M. Hardy), however, is sure that in Maine they ate the pulp only incidentally in their efforts to get the seeds.

With regard to the order of preference which the Grosbeaks followed when more than one kind of suitable food was within reach, it may be mentioned that eighteen specimens examined at Andover, Mass., between Nov. 30 and Mar. 11, show that up to the second week in January the birds ate ash-seeds almost exclusively. Between that time and the beginning of March, they fed chiefly on rotten apples, and during March mainly on maple buds. A report from Arlington gives ash-seeds as their principal food till January 15, rotten apples during February, and maple buds in March.

That the movements of the Grosbeaks were governed by the abundance or absence of food was clearly shown by the behavior of a flock of about thirty-six birds which appeared at West Medford about the 1st of December and soon stripped an English hawthorn of its fruit. The owner of the place then put out hemp seed to which the birds came regularly, collecting in the neighboring pastures, and flying in a body to the feeding ground. The hemp was placed on the top of a kennel surrounded by twenty dogs, whose noise, however, did not seem to disturb the Grosbeaks in the least. They fed four times a day—at morning, noon, four P. M., and sundown. One day when the hemp had not been put out for them, the birds ate all the seeds of a Roxbury waxwork vine (*Celastrus scandens*). By February 16, their number had diminished to eighteen, but these came regularly, and grew exceedingly tame. On March 12, the date of the last report, they had increased again to twenty-eight.

With regard to the relative number of bright males to dull plumaged birds, the evidence shows very clearly that as the flight pressed southwards the number of bright males steadily diminished until at Woods Hole, the southernmost station for Massachusetts, flocks of a hundred members each often did not contain a single red bird. This change in the normal ratio seems to have been due chiefly if not wholly to the fact (attested by many different observers) that as the flocks passed slowly through the more thickly settled districts the conspicuous and attractive red birds were nearly all picked off by country gunners and taxidermists.

It remains to discuss the route taken by the Grosbeaks during this remarkable flight, and to define the area which they are known to have covered. The lack of observers north of New

England leaves their starting point and the route by which they reached Nova Scotia and the coast of Maine a matter of conjecture, but after they had passed the Maritime Provinces, their progress through Maine to southern New England may be easily traced.

Map No. 1 shows with two exceptions all the stations from which Grosbeaks were reported in unusual numbers. These exceptions are Locust Grove, in northwestern New York, and Halifax in Nova Scotia. At the former station they were seen from the end of November up to the end of January. In Halifax they were very numerous about November 28. They were also reported from Godbout, Quebec, and from Toronto and vicinity, but in no unusual numbers. A few were seen at Ottawa, but none at Montreal. On the Saskatchewan River they were found in only their usual numbers.

These facts indicate that there was no marked flight in the St. Lawrence Valley, and that the flocks which invaded New England came from Labrador or Newfoundland across or around the Gulf of St. Lawrence to New Brunswick and Nova Scotia.

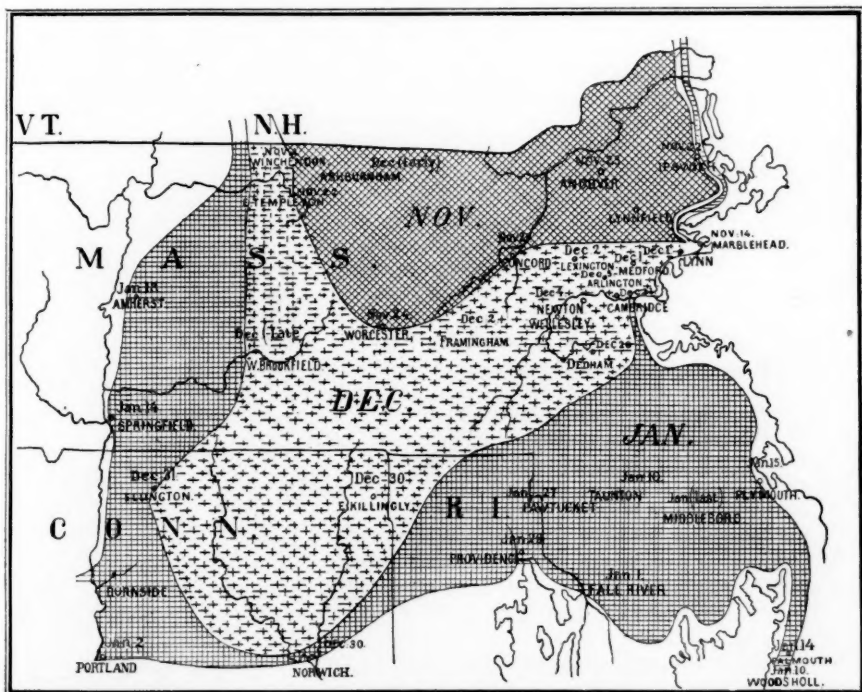
From eastern Maine, where they were seen in flocks of from ten to forty birds each, they entered northeastern Massachusetts, the first flocks having been noted there about the third week in November. In Massachusetts the horde seems to have divided, one party entering Connecticut, and pushing its vanguard as far as Stamford¹; the other invading Rhode Island and southern Massachusetts as far as Woods Hole, where they were numerous as late as February 7.

A reference to Map No. 1 shows also a number of stations to the westward of the area supposed to have been covered by the principal flight. With the exception of Locust Grove, these stations were all either in Berkshire County, Mass., or just over the New England line in New York. It is possible of course to consider the birds which visited them as belonging to the great flight, but inasmuch as Grosbeaks appear much more frequently in Berkshire County and northern New York than in eastern

¹ Mr. J. T. Delafield reported one bird about Dec. 1, at New Rochelle on Long Island Sound, New York.

Massachusetts, and as several of the extralimital records—notably for New York—relate to dates in November or early December, it seems better to treat them as representing independent movements, such as were noted during the same winter in northern Maine and New Hampshire.

Map No. 2 shows the gradual and fairly regular southward advance of the greater part of the flock across southern New England, from the end of November through December and January. That the birds pushed no further southward is evidence that they found food enough to supply them until their return, which, though difficult to trace, apparently occurred in



MAP II. DISTRIBUTION OF THE PINE GROSBEEK, WINTER OF 1892-93.

the early part of March. Several observers in eastern Massachusetts, who were in the field throughout the winter, and kept regular observations, reported a falling off in February, and a marked increase in March. The latest records were Fitchburg, April 2, and Arlington April 4.

TABLE I.

Food of the Pine Grosbeak.

| | | |
|---------------|--|------|
| Seeds of | 1. <i>White Ash</i> .—Nova Scotia (1); Massachusetts (9); Connecticut (1); New York (1). | = 12 |
| | 2. <i>Apple</i> .—Maine (1); New Hampshire (1); Massachusetts (4). | = 6 |
| | 3. <i>Crab Apple</i> .—Maine (3); Massachusetts (2) [<i>P. parkmanii</i> (1)]. | = 5 |
| | 4-6. <i>Norway Spruce, White Pine, Weeds</i> .—Massachusetts (3). | = 3 |
| | 7. <i>Grasses</i> .—Massachusetts (2). | = 2 |
| | 8-11. <i>Ailanthus, Roxbury Waxwork, Pitch Pine</i> (J. H. Bowles, Punkapog), <i>Black Ash</i> (O. Durfee, Fall River). | |
| Buds of | 1. <i>Rock Maple</i> .—Maine (2); New Hampshire (1); Massachusetts (9); Connecticut (1); New York (1). | = 14 |
| | 2. <i>Norway Spruce</i> .—Massachusetts (6); Connecticut (1). | = 7 |
| | 3. <i>White Pine</i> .—Maine (1); Massachusetts (1); Connecticut (1). | = 3 |
| | 4. <i>White Ash</i> .—(N. B. Hale, Worcester), (J. H. Bowles, Punkapog). | = 2 |
| | 5. <i>Larch</i> .—Massachusetts (2). | = 2 |
| | 6-10. <i>White Maple, Sycamore</i> (H. A. P. Smith, Digby, Nova Scotia), <i>Red Cedar, Honeysuckle</i> (F. H. Kennard, Brookline, Massachusetts), <i>Walnut</i> (J. H. Bowles, Punkapog, Massachusetts). | = 1 |
| Soft fruit of | 1. <i>Apple</i> .—Massachusetts (8); Connecticut (1); New York (1). | = 10 |
| | 2. <i>Mt. Ash</i> .—New Brunswick (1); Maine (3); Massachusetts (2). | = 6 |
| | 3, 4. <i>Black Alder, Honeysuckle</i> . | = 2 |
| | 5-10. <i>Bush Honeysuckle</i> (Diervilla), <i>High Bush Cranberry, Privet, Cedar, English Hawthorn, Sumac</i> . | = 1 |

TABLE II.

Proportion of Red Males.

| | | |
|--|------------|------------|
| 1. Canada (Inland) | = 1 to 6½ | gray birds |
| 2. Northern New England and Maritime Provinces | = 1 to 10 | " " |
| 3. Massachusetts (western and northern sections) | = 1 to 10 | " " |
| 4. Massachusetts (eastern and central sections) | = 1 to 30 | " " |
| 5. Massachusetts (southern section) | = 1 to 100 | " " |
| 6. Rhode Island | = 1 to 150 | " " |

DESCRIPTION OF A NEW HERON (*ARDEA VIRESCENS ANTHONYI*) FROM THE ARID REGION OF THE INTERIOR OF NORTH AMERICA.

BY EDGAR A. MEARNS, M. D.

ON comparing a series of Green Herons, in breeding plumage, from the New and Salton Rivers, streams of the Colorado Desert crossing the Mexican boundary line, collected by the writer, in April and May, 1894,¹ with specimens in similar condition from other regions, the Colorado Valley form is found to constitute as valid a race of the *Ardea virescens* as any of those hitherto separated. It is proposed, therefore, to describe it as a new subspecies, and to name it *Ardea virescens anthonyi*, in honor of Mr. A. W. Anthony, of San Diego, California, who, during recent years, has contributed so much to our knowledge of the avifauna of the West, especially the region of the Pacific coast.

***Ardea virescens anthonyi*, new subspecies.**

Subspecific characters.—Similar to *Ardea (Butorides) virescens* of the eastern United States, but slightly larger, and paler throughout, with the light markings of the wings, neck and throat much less restricted, and whiter.

Type.—No. 135,576, Smithsonian Museum (original No. 10,529), ♂ ad. Taken at Seven Wells, Salton River, on the Colorado Desert, Lower California, near monument No. 213, Mexican boundary line, April 12, 1894, by Dr. Edgar A. Mearns. Length, 485; alar expanse, 740; wing, 207; tail, 79; culmen, measured from frontal feathers, 59; tarsus, 55; middle toe and claw, 58 mm.

Geographic distribution.—This is a bird of the arid regions of the interior. There are specimens in the Smithsonian collection from Yreka and Sacramento, California, from the Valley of Mexico, and from Santa Efigenia, Tehuantepec. It breeds on the Verde River, in Central Arizona, and was found by us on the streams of the Mexican boundary line, from the San Bernardino River (monument No. 77), to the Coast Range of California, in which region it was also breeding.

¹ Eighteen specimens were collected by the writer, in Central Arizona; and fourteen were collected by him and his assistant, Mr. Frank X. Holzner, on the recent re-survey of the Mexican boundary.

This Heron bears no close resemblance to either of the four insular forms (*saturatus*, *frazari*, *bahamensis*, and *brunnescens*) hitherto described; but, as would be pre-supposed, is most closely related to the continental species, *Ardea virescens*, from which it differs in being larger. It is, in fact, the largest of the forms mentioned. Pallor is its distinguishing characteristic. The usually black sagittate spots of the neck are brownish, and fewer in number. The sides of the neck are purplish chestnut and rufous instead of glaucous bay. The green of the wings is yellowish bottle green, the tail blackish bottle green, and the scapulars glaucous gray. The under surface of the body and under side of wings are much paler and less slaty than in *virescens*. The pale or whitish edging of the wing-coverts, and on the edge of the wing, are much broader and whiter. The whitish of the under side of the head and neck extends continuously from the bill to the end of the pectoral plumes, and is less invaded by the dark coloring of the sides of the neck.

From *frazari*¹ and *saturatus*² it differs in its larger size, and much paler coloration, with much less restriction of the pale or whitish markings. The metallic colors of the upper surface are wholly different.

From *bahamensis*³ it is readily distinguished by its much greater size and different coloring, though the Bahama bird is, perhaps, even paler; and from *brunnescens*⁴ it may be instantly recognized by the presence of white on the throat and neck, which is wanting in *brunnescens*, in which the whole neck and throat are rufous brown, with a tinge of orange brown on the chin.

The dimensions of this subspecies and of *virescens* (*verus*) are shown in the appended table of measurements, taken in millimeters from fresh specimens, measured in the field by the writer.

¹ *Ardea virescens frazari* Brewster, Auk, V, p. 83, 1888. "*Habitat.* Near La Paz, Lower California."

² Described by Mr. Ridgway from Swan Island, West Indies.

³ *Ardea bahamensis* Brewster, Auk, V, p. 83, 1888. "*Habitat.* Bahamas (Rum Cay, Watling's Island, Abaco)."

⁴ *Ardea brunnescens*. "Gundl. Mss." LEMB. Aves Cuba, p. 84, 1850. "*Habitat.* Cuba."

AVERAGE MEASUREMENTS OF *Ardea virescens anthonyi*.

| <i>Number of Specimens, Sex, and Age.</i> | <i>Locality.</i> | <i>Length.</i> | <i>Alar Expanse.</i> | <i>Wing.</i> | <i>Tail.</i> | <i>Culmen from Feathers.</i> | <i>Tarsus.</i> | <i>Middle Toe and Claw.</i> |
|---|---|----------------|----------------------|--------------|--------------|------------------------------|----------------|-----------------------------|
| 6 Adult males. | Salton and New Rivers, Colorado Desert. | 498 | 746 | 207 | 78 | 62 | 56 | 58 |
| 1 Adult male. | San Pedro River, Mexican boundary line. | 505 | 760 | 210 | 85 | 60 | 55 | 58 |
| 9 Adult males. | Verde River, central Arizona. | 497 | 730 | 203 | 77 | 60 | 54 | 59 |
| 4 Adult females. | Salton and New Rivers, Colorado Desert. | 488 | 735 | 203 | 79 | 61 | 54 | 55 |
| 4 Adult females. | Verde River, central Arizona. | 490 | 735 | 200 | 76 | 61 | 54 | 58 |
| 16 Adult males. | Southwestern border of the United States. | 498 | 738 | 205 | 77 | 61 | 54 | 58 |
| 8 Adult females. | " " " " | 489 | 735 | 202 | 78 | 61 | 54 | 56 |

Ardea virescens.

| | | | | | | | | |
|---------------------|--|-----|-----|-----|----|----|----|----|
| 1 Adult male. | Fort Snelling, Minnesota. | 480 | 705 | 197 | 75 | 64 | 54 | 56 |
| 5 (Adult?) females. | Highlands of the Hudson River, New York. | 451 | 679 | 183 | 76 | 58 | 51 | — |

HAWK FLIGHTS IN CONNECTICUT.¹

BY C. C. TROWBRIDGE, COLUMBIA COLLEGE.

DOUBTLESS many naturalists and collectors have observed large flights of different species of birds, from time to time, along the eastern coast of the United States, and they have probably noted also that certain birds were sometimes common and even abundant in flights, while at all other periods they were very rarely seen in that part of the country, where they had suddenly become so plentiful.

Although the reasons for the appearance of unusual numbers of birds, in some localities, at one time, have not always been understood, causes of the occasional abundance of some of the

¹ Read before the New York Academy of Sciences, May 13, 1895.

water birds have been, for a long time, considered known. Such is the case of the flights of the Golden Plover (*Charadrius dominicus*) and the Eskimo Curlew (*Numenius borealis*), species which are sometimes very common, during their southward journey, on the capes and islands of our eastern coast. The blowing in shore of the birds, in their line of flight, by easterly winds when, in August, they are migrating south far out at sea, has been generally accepted as the cause of the sudden appearance of numbers of these two species of the Limicolæ, every few years, flying over the island of Nantucket, Cape Cod, and other such out-lying portions of our country as are washed by the Atlantic Ocean.

Land birds have also occasionally appeared in flights in great numbers, and it has been my pleasure to have devoted some time to observing the unusual gatherings and flights of the Falconidæ.

Some years ago, my attention was called to certain peculiar actions manifested by the Hawks, during their migrations through the New England States, and more particularly to great flights of these birds, which often occurred in southern Connecticut in the months of September and October, when most of these Raptores pass that State on their way to the South in quest of warmth and sunshine and a hunting ground, where food is more easily procured, than in the bleak north, during the winter season.

In the course of a number of years, while collecting ornithological specimens in the vicinity of New Haven, Connecticut, I observed that on certain days early in the fall, almost annually, immense flocks of hawks appeared migrating southward, and I also noticed that several of the hawks, which were very abundant during these flights, were of a species rarely found in Connecticut at other times of the year.

The hawks sometimes appeared in such great numbers, and so suddenly and so irregularly, that I felt sure that there must have been some underlying causes which influenced the fall migration of these birds, and thus were gathered together into flocks a family of birds, the species of which even, under usual conditions, are seldom observed otherwise than alone or in pairs.

I therefore determined to investigate the question and to search for possible causes, which might have affected the migra-

tions and produced these flights, and with the material from the observations which I made, I hoped to partly—if not wholly—solve the question concerning the causes of the flocking of hawks in Connecticut during the autumn migrations.

Always during the last few days of August, and even later, before the brisk fall winds commenced to blow, a few stragglers of the Accipiters and Buteos would be seen soaring southward in Connecticut, some drifting with the wind far above in the clouds, while others were sailing low down over the fields.

But in the middle of September, when the stronger winds blew from the northwest and north, and the temperature lowered, the number of hawks which were passing greatly increased. Sometimes, however, when there was little or no wind, and the day was warm and dull, or if the prevailing winds had been southerly for several days, very few hawks were observed. But suddenly, when a fair breeze had sprung up from the northwest, the sky above the land near the sea-coast became almost clouded with hawks of various species, active and restless, circling and soaring about.

Flights in which there were many hundreds of birds I have seen many times, and I have on certain occasions counted several hundred hawks soaring together in one flock, looking like an immense swarm of gigantic insects. Often on a day after a flight, the wind having turned again to the south, many species of hawks were found in the woods and about ledges of cliffs, some perching on old trees, others lazily feeding, while a few were seen soaring about in a sluggish manner, showing the presence of an unusual number of hawks, although few of them appeared to be migrating.

On the wooded hills near Long Island Sound, during a flight, the hawks were found flying through the trees, but as they passed on and flew towards any very populated district, they arose high above in the clouds, so that most of these birds must have passed unseen except by those observers who were on the lookout for them.

On several occasions, before I had had the pleasure of being actually in the midst of a hawk flight, I had observed large flocks of hawks circling very high in the sky, and Dr. C. Hart Merriam,

in his 'Birds of Connecticut,' mentions a congregation of hawks as follows: "On the 25th of September, 1875, I saw near New Haven, a flock of twenty-six Red-tailed Hawks, soaring high and sailing slowly southward. The day was clear and cool, and there was little wind."

The first very large flight of hawks which I ever witnessed occurred on the 18th of September, 1886, and on that day there was also a great flight of Red-headed Woodpeckers (*Melanerpes erythrocephalus*) and Flickers (*Colaptes auratus*).

I started from New Haven early in the morning and arrived upon the field of observation before sunrise. The hawks appeared at about seven o'clock, and the flight continued during the rest of the morning. All the Raptores passed westward along the coast-line of Connecticut. At one moment they flew high above the fields, and at the next low over the crests of the hills, some nearly grazing the open ground, while others darted through the tree tops of the more wooded portions of the high lands. Several species of hawks were very abundant, especially the Sharp-shinned (*Accipiter velox*), in the young plumage. On the 16th of September of the following year (1887), there occurred another great flight of hawks, and I was again fortunate enough to witness it. There was little wind at first, and the hawks did not appear until nine o'clock in the morning, when a few Sharp-shinned Hawks were observed. But later on in the day, the wind increased in force. Thousands of hawks of different species flew past New Haven, and Broad-winged Hawks (*Buteo latissimus*), both adults and young, appeared soaring in immense clusters. In one great flock alone there must have been three hundred hawks, the greater part of which were undoubtedly *Buteo latissimus*, although with field glasses I distinguished several species in the flock. I also observed several Bald Eagles (*Haliaeetus leucocephalus*) in various plumages, circling high. The flight continued from nine o'clock in the morning until darkness set in in the evening. The day was cool and fine and the wind blew very briskly from the north. On the next day there was a flight for a short time early in the morning, but the direction of the wind changed and the flight ceased soon after.

One week later, on the 24th of September, after a number of days of southerly winds, there occurred a flight which lasted from

six o'clock in the morning until noon. I was informed by several collectors, who were out shooting at the time, that three flocks of Broad-winged Hawks passed over them, and that they were able to secure a number of the birds. I examined several and found that the adult specimens were moulting about the head.

No very large flight of hawks occurred in the fall of 1888, but in 1889 on the 28th of September there was another great flight, but, unfortunately, I did not see it, for on that day I was in Hartford, Connecticut, where no flight occurred. Although I have been in the northern part of the State of Connecticut repeatedly in the autumn, I have never seen more than a few hawks at one time in that section, and those were generally flying southward, on a day when the wind blew from the north.

Mr. Willard G. Van Name of New Haven has informed me that the flight which took place on September 28 was made up of almost all the species of hawks which are migrants in New England, and many other different land birds, and also that the hawks all flew in a westerly direction over the city of New Haven.

On the days on which the above flights occurred, the conditions of the weather were quite the same. In each case it was clear and cool, with a strong northwest wind.

On the 18th of September, 1890, when a large flight of hawks occurred, the day was warm and partly cloudy, but there was a light breeze from the northwest, and there had been southerly winds for a long period previous, which seemed to show that the south winds had temporarily checked the migration of the hawks. During this flight, the hawks flew higher than usual, but I observed two immense flocks of Broad-winged Hawks (*Buteo latissimus*), and I saw several of them shot down, together with Sparrow Hawks (*Falco sparverius*), Sharp-shinned Hawks (*Accipiter velox*), and Cooper's Hawks (*Accipiter cooperi*), all of which were plentiful.

In the fall of 1891, I was very anxious to obtain a number of specimens of different species of the Falconidæ, and I went out from New Haven repeatedly with hopes of finding a flight in progress, but I could only find the hawks flying on three days, the 8th, 9th, and 14th of September. The first two days I secured but a few, but on the 14th I killed over twenty, the greater part

LIST OF 'HAWK FLIGHTS' WHICH HAVE OCCURRED IN SOUTHERN CONNECTICUT DURING THE YEARS 1885-1894.

| Date. | Weather. | Wind. | Veloc. of the Wind. | Remarks. |
|---------------|----------------|-------------|---|---|
| Sept. 23, '85 | Wet and cloudy | N. | Moderately strong ¹ | Moderate flight; <i>Falco sparverius</i> common. |
| Sept. 18, '86 | Clear and cool | N. W. | Very strong | A great flight of small hawks and various other land birds. |
| Sept. 22, '86 | Clear | N. W. | Light | <i>Buteo latissimus</i> abundant. |
| Sept. 16, '87 | Clear and cool | N. W. | Very strong | A great flight all day. |
| Sept. 17, '87 | " | N. | Light | " |
| Sept. 24, '87 | " | N. W. to N. | Strong | <i>Buteo latissimus</i> , abundant early in the morning. |
| Oct. 19, '87 | " | N. | " | " also <i>Accipiter velox</i> . |
| Sept. 10, '88 | " | N. | No large flight, but almost all the migrant hawks observed. | No large flight, but almost all the migrant hawks observed. |
| Sept. 22, '88 | Clear and cool | N. W. | Light | <i>Accipiter velox</i> abundant. |
| Sept. 22, '88 | " | N. W. | Mod. strong | Moderate flight. |
| Sept. 22, '89 | " | N. W. | " | " |
| Sept. 28, '89 | " | N. W. | Strong | " |
| Oct. 15, '89 | Cool | N. E. | " | Very large flight. |
| Sept. 18, '90 | Fair and warm | N. W. | Moderate flight | Moderate flight; <i>Accipiter velox</i> plentiful as usual. |
| Sept. 21, '90 | Fair | N. W. | Light | Forty hawks killed; <i>Buteo latissimus</i> abundant. |
| Sept. 23, '90 | " | N. W. | Mod. strong | Moderate flight. |
| Sept. 24, '90 | " | N. W. | " | <i>Pandion haliaetus carolinensis</i> abundant. |
| Sept. 8, '91 | " | N. W. | " | Small flight. |
| Sept. 9, '91 | " | S. W. | Light | Small flight of <i>Accipiter velox</i> . |
| Sept. 14, '91 | Clear and cool | W. | Mod. strong | Hawks increasing in numbers. |
| Oct. 21, '92 | Clear and warm | N. W. | Strong | A large flight; killed over twenty hawks. |
| Sept. 20, '93 | Clear and warm | N. W. | Strong | Small flight. Comparatively few passed this year. |
| Sept. 21, '93 | Clear and cool | N. W. | Mod. strong | Large flight; <i>B. latissimus</i> abundant; <i>Falco columbarius</i> killed. |
| Sept. 21, '94 | Clear and cool | N. N. W. | Very strong | Great flights of adult <i>Buteo latissimus</i> . |
| —, '94 | (No flight) | N. N. W. | " | No large flights occurred this year. |

¹In the above list a 'strong' wind indicates a velocity of from 25 to 40 miles per hour, a 'moderately strong' wind from 10 to 25 miles per hour, and a 'light' wind from 5 to 10 miles per hour.

of which were Sharp-shinned (*Accipiter velox*). On this day I saw no less than twelve Bald Eagles (*Haliaeetus leucocephalus*) in various plumages flying over New Haven, soaring slowly towards the southwest.

Again, during the autumn of 1893, I made careful observations, but found few hawks passing until the 20th of September, when quite a flight occurred. This time I obtained two Broad-winged Hawks, a Sparrow Hawk, and a Pigeon Hawk (*Falco columbarius*), and although I could have shot many young Sharp-shinned Hawks, which were very abundant, I refrained from doing so. Early on the following day, the 21st, there appeared a flock of about twenty-five Broad-winged Hawks circling low over the city of New Haven. I hastened out with my gun and soon stood in a position favorable for observation, where I saw hundreds of them, and secured eight beautiful adults with the greatest ease. I even took a selection of plumage, as the birds passed a few yards overhead, battling against the strong wind which blew from the northwest, as they flew along the coast.

Last year (1894), I was unable to take observations, but I have made inquiries, and have been told that no large flight occurred.

The following is a list of the Falconidæ found in Connecticut and the frequency of the appearance of the various species in the autumn 'flights' in the southern part of the State.

Circus hudsonius. MARSH HAWK.—Common summer resident. Breeds, abundant in 'flights.'

Accipiter velox. SHARP-SHINNED HAWK.—Summer resident. Breeds sparingly late in May. Exceedingly abundant in September.

Accipiter cooperi. COOPER'S HAWK.—Occasionally seen in winter. A common breeder, and fairly abundant in 'flights.'

Accipiter atricapillus. AMERICAN GOSHAWK.—Rare migrant late in the fall.

Buteo borealis. RED-TAILED HAWK.—Common resident. Seldom breeds near the sea coast. Small flocks are often seen about October 1.

Buteo lineatus. RED-SHOULDERED HAWK.—Resident. Breeds abundantly, but is never common in 'flights.'

Buteo latissimus. BROAD-WINGED HAWK.—Summer resident, but breeds sparingly. Very regularly abundant in 'flights' from the middle to the last of September. Thousands pass nearly every fall. This species is common in northern New England, and parts of Canada during the summer.

Archibuteo lagopus sancti-johannis. AMERICAN ROUGH-LEGGED HAWK. Not very rare in the cold season on the low marsh lands.

Halieetus leucocephalus. BALD EAGLE.— Resident. A few pairs breed within the State. Common in September in 'flights.'

Falco peregrinus anatum. DUCK HAWK.— Rare resident. On May 9, 1888, a nest with three fresh eggs was found on a cliff, twelve miles from New Haven, Conn. Occasionally shot in the fall.

Falco columbarius. PIGEON HAWK.— Resident, but rare at all times, except in September. No record of its nesting within the State has yet been established.

Falco sparverius. AMERICAN SPARROW HAWK.— Resident; but does not breed very abundantly. Very common in 'flights,' when two, three, or four are generally found migrating together.

Pandion haliaëtus carolinensis. OSPREY.— Common summer resident. Very abundant during September.

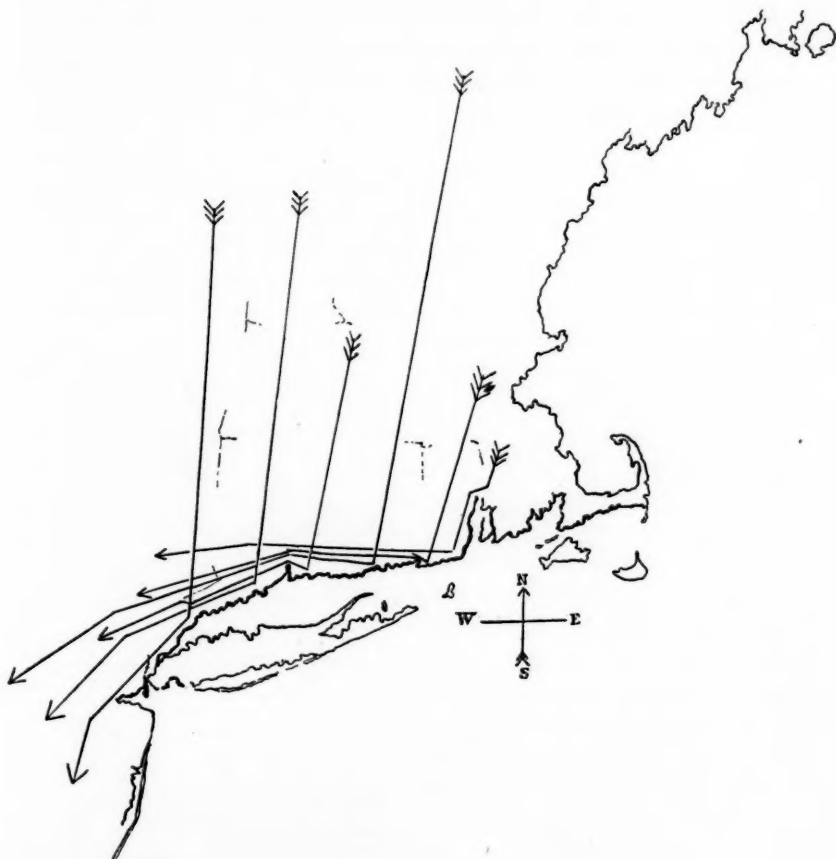
In the spring for a number of years, I used to be constantly in the field in southern Connecticut, and yet I have never noticed any gathering of hawks, nor have I ever found them at all numerous at any time during that season. And those which were seen during the spring were, for the most part, birds which were nesting in that locality.

As is well known, hawks are not usually gregarious in their habits, and yet at various times they have appeared in immense flocks, and have been found to be migrating together in vast numbers, as in the flights which have been observed along the Connecticut coast, on certain days in the fall.

Taking into consideration the conditions which existed during the time of all the hawk flights, such as the strong northerly winds and the cool and clear state of the weather, and also keeping in mind the outline of the southern portion of the New England coast, the correct solution of the origin of these flights can perhaps be obtained by finding causes in these conditions.

It is my belief that the manner in which the flights of hawks occurred was as follows. All the southern border of Connecticut is washed by Long Island Sound, and the entire shore lies nearly in an east and west direction. When the migrating hawks flew southward with the strong northerly winds, and arrived at the Sound, rather than fly over the water, they would turn westward and proceed along the coast until they arrived at the State of New York, where they would continue southward, through New Jersey

and Pennsylvania. Thus, during their flight, they were crowded together along the entire southern border of Connecticut, as will be seen by an inspection of Map I.

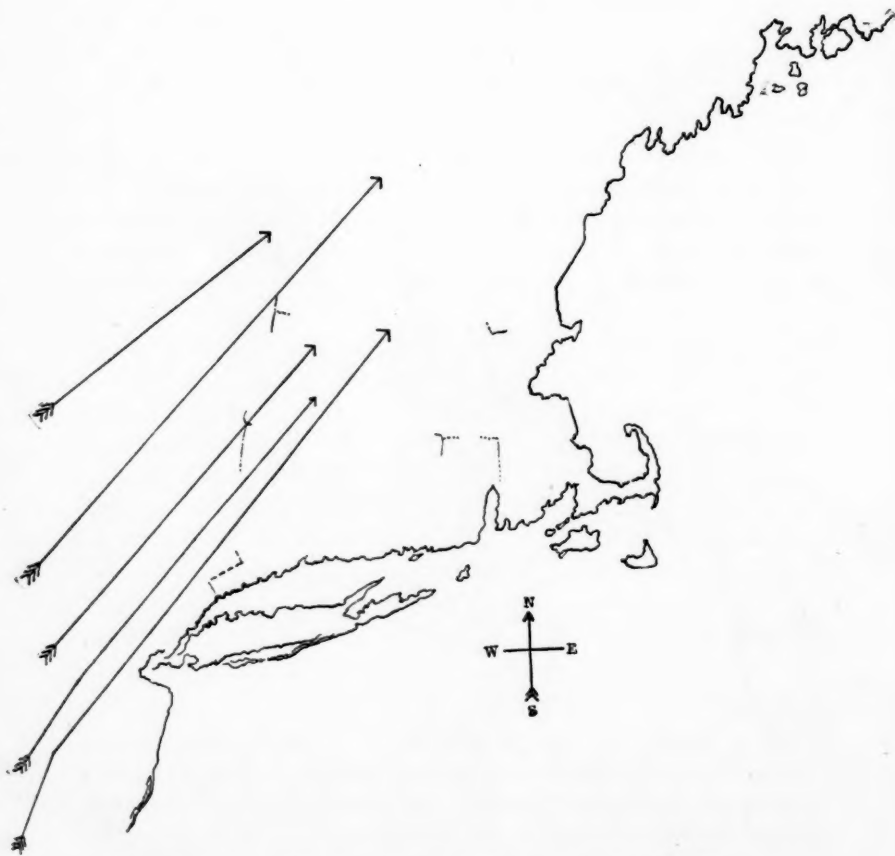


MAP I. COAST-LINE OF THE NEW ENGLAND STATES.—The arrows indicate the general direction of flight taken by Hawks during the autumn migrations, when the winds are N. W.; showing how the Hawks congregate at the coast-line.

The hawks seemed to invariably wait before flying south, until a wind blew which would favor them in their migrations. And I have noticed that the greatest flights have occurred when the wind

had suddenly changed to a northerly direction, after a period of prevailing southerly breezes, showing that the adverse winds had held back the hawks and delayed their southward journey.

An examination of the weather maps of the U. S. Weather Bureau has showed that on the days when the greatest flights occurred, the wind was northerly throughout New England, and also that previous to these flights the wind had generally been southerly for several days.



MAP II. COAST-LINE OF THE NEW ENGLAND STATES.—The arrows indicate the general direction of flight taken by the Hawks in the spring, when the winds are S. W.; and show why the migrating Hawks do not pass through the southern New England States at that season in any numbers.

The hawks migrating from eastern Canada and all the New England States are those which find their course turned by the southern coast line of Massachusetts, Rhode Island, and Connecticut, and although many hawks may fly over the water to Long Island, yet I am quite confident, from all my observations, that the great majority of them do not attempt it, but that they pass westward along the coast through Connecticut, whenever they fly from the north with a strong free wind, and find themselves at Long Island Sound.

The above theory, accounting for these hawk flights, applies equally to flights of other land birds which occur occasionally, and the abundance of various species, on the southern border of the three above-named New England States, in the fall of the year, for often there occurs during the autumn months a large flight of land birds, which is always greatest near the coast.

Perhaps the peculiarities of the 'flights' of birds in various parts of the world could be traced to causes similar to those which seem to affect the migration of birds in New England; for the position and direction of coast lines, and even mountain ranges, and the direction of the wind, are certainly very important factors in the migration of wild fowl. Thus it seems as if in the case of the flights in southern New England, that the east and west direction of the coast line, and the wind, both have their effect in influencing the migration of the hawks and other land birds.

There have always been flights of some size of the diurnal Raptores during the fall of every year, except when the prevailing winds have been east. In that case the greater portion of the migrating hawks seem to have been blown and to have flown to the westward. And as a southwest line of flight from most of the New England States does not cross Connecticut, most of the hawks must have gone south without passing over that State.

Somewhat similar conditions must have existed during the spring migrations; when a southwest wind prevailed, and the hawks were flying northward, they took advantage of it, and, in general, sailed northeastwardly, and so have not passed over the southern New England States in any great numbers, for these States did not lie in the line of their flight, which accounts for the observed scarcity of these migrating Raptores in the spring.

The above theories relating to the causes of flights of hawks and of other land birds also, seem to be absolutely substantiated by all data which I have been able to procure, and although I found that the evidences were always in favor of the foregoing explanation of the flight of hawks in Connecticut, I wished to make observations over a number of years, in consequence of which I am able to present a complete list of the flights which have occurred at intervals during the last decade,—1885 to 1895.

NOTES ON THE ANCIENT MURRELET (*SYNTHLIBORAMPHUS ANTIQUUS*), BY CHASE
LITTLEJOHN. WITH ANNOTATIONS.

BY MAJOR CHARLES BENDIRE.

AMONG our North American Waterbirds, there are few whose general habits, etc., are less known to ornithologists than the Murrelets representing the genera *Synthliboramphus* and *Brachyramphus* Brandt; and in fact we know scarcely anything about the majority of the species belonging to them.

The best known of these is the Ancient Murrelet, also sometimes called Black-throated Guillemot and *Starik* (Old Man) by the Russians. Its geographical range extends along both the coasts and islands of the North Pacific from Japan and the Kurils, north to Kamchatka, Asia and across the Alaska Peninsula, south to Puget Sound, Washington, and perhaps still farther in this direction in winter.

Mr. Chase Littlejohn of Redwood City, California, who spent the spring and summer of 1894 on different islands of the Alaska Peninsula, engaged in making natural history collections, has kindly furnished me with the following notes on this still little known species, which I deem of sufficient interest and importance to publish at once, particularly as it may draw the attention of collectors to some of the other species found along the coasts of the Pacific Ocean, which are still less known and whose general habits are probably very similar.

All of our Murrelets spend the greater part of the year, as far as known, on the ocean, and mostly out of sight of land, only

visiting the coasts of the mainland and the numerous islands for the purpose of reproduction.

Mr. Littlejohn says: "We were about 180 miles east by south from Unga (a small island south of Sand Point on the Alaska Peninsula, in about latitude 55° , longitude 160°), when this hardy bird was first seen. They were usually in twos and threes and scattered among large flocks of Crested Auklets (*Simorhynchus cristatellus*). One would think at first that they were amusing themselves by flying a short distance ahead of the ship, dropping into the water and swimming in, so as to be near the bow as the vessel passed, thus diving beneath the hull and coming up again just under the stern. After they had dropped astern a few hundred feet, they took wing and repeated this manœuvre with unvarying precision throughout the entire day. By close watching I found that it was not for pleasure they did this, but that they were feeding on small invertebrates, such as are found on ships' bottoms. At such times they are very unwary and can be easily taken with a dip net alongside of the vessel, as can also the Crested Auklet, the latter on the wing, while flying in circles about the vessel. From the time the first were seen until land was sighted there were always some about, but as we neared the land or got on soundings, they became more plentiful and did not follow the ship any farther, owing most likely to food becoming more abundant.¹

¹ "In order to make this statement a little clearer I will try to explain it according to my theory on this subject. During the severe and stormy weather found here during winter and early spring, most of these birds do not remain near land, but probably go far out to sea. I believe this to be the case from having seen them in such localities both in the fall and spring, where the weather is influenced by the Japanese current; here also in the warmer water food would be more readily found. They remain about here until the severe weather is over and then gradually make their way towards land, following probably the main food supply. All the birds I caught were very poor in flesh and being the laggards of the flock, had remained too long behind, until after food had become too scarce to supply them where a short time before there was sufficient. Numerous invertebrates always gather about a vessel's bottom and the birds finding them more abundant there than elsewhere, follow in order to feed upon them, and upon reaching shoaler water they apparently come up once more with their main food supply and therefore give up the chase."

"By June 2 their nesting grounds were reached, but no birds were to be found, and to one unacquainted with their habits there was no sign of their having yet arrived. Nevertheless we land, pitch our tent, and wait until the close of that long twilight which is only found in the far north, and just as it merges into night we see a bat-like form flit by, and presently from somewhere in the gloom comes an abrupt and startling *kroo-kroo-coo*, which is at once answered with a like call, or with a nerve-destroying *kwéé-ké-ké-ké* in a very high, shrill key, the call-note of Leach's Petrel (*Oceanodroma leucorhoa*). Presently we hear a whirl of wings in different directions, then more voices, pitched in various keys, and before we are scarcely aware of it, both heaven and earth seem to vibrate with rumbling noises and whirl of wings.

"As we step out of our tent perfectly astonished at this sudden change, and move to the foot of a small knoll near by, listening to this violent outburst of noises, a muffled sound comes right from under our feet. We stoop and discover a small burrow in the earth and from it come the cooing love-notes of a Petrel, *k-r-r-r*, *k-r-r-r*, and this is its home. Just from a somewhat larger burrow, only a few feet to our right, comes another sound, and moving cautiously in this direction we listen to the love-note of Cassin's Auklet, which reminds one of the sounds produced by a squeaky buck-saw, while passing through a hard knot, somewhat like *kwéé-kew*, *kwéé-kew*, which fortunately lasts only for three or four hours each night. These noises, coming as they do from hundreds of Auklets and thousands of Petrels, become almost distracting and banish sleep most effectually, for the first few nights on the island.

"These, then, are some of our Murrelet's neighbors, but where is he? We listen in vain for some note of his, but hear none. As we walk on a little distance among the tall grass of last year's growth, we notice a small dark object flapping about, and after a short chase we manage to capture it and discover our 'Old Man,' but fail to locate his nest, one of the main objects of our long and tedious voyage, and we did not succeed in finding one containing eggs until the 11th of June. This was principally because they had not commenced to lay sooner, and partly, also, because

we did not then look in the places — under rank matted grass — which are mostly preferred by this Murrelet for nesting sites.

"We remained on this desolate, wind-swept island from May 29 until June 12. Our days were spent in hunting, preparing skins and eggs, but time passed slowly. At first we looked forward to night in order to renew our acquaintance with our feathered neighbors, but after losing about a week's sleep, owing to their squeaking, I at least felt like choking the whole lot; and as if not satisfied with the constant babble of their neighbors, the Murrelets took especial delight in alighting at the foot of our A-shaped tent, toenailing it up to the ridge pole, resting there a moment, and then sliding down on the other side. This exercise seemed to amuse them, and it certainly did us, until the novelty wore off, as it was not conducive to a restful sleep, and finally, tiring of this, and finding but few Murrelets' eggs; we broke camp and started for the mainland, and did not return to the island again until June 23.

"In a short time after the first birds arrive on their breeding grounds, and before one has time to realize it, the entire surface of certain favorite islands is literally alive with Murrelets and Auklets, in the proportion of about two of the latter to one of the former, as well as of both Leach's and Fork-tailed Petrels (*Oceanodroma furcata*), the first greatly outnumbering the last. When one walks about at this time, the Murrelets and Auklets become frightened, running, flopping, and flying about in such numbers, that one has to be careful where he steps, lest they be crushed under foot. If it is windy, and it usually is, they are on the wing at once as soon as disturbed, and are quickly out of sight, but when a calm prevails they have to flop to the side of a steep bank where they can jump off, and thereby gain sufficient headway to keep on the wing, and then in their frantic efforts to be off, they become bewildered and are just as apt to fly in one's face, or against the cliffs, as anywhere; although they usually strike with great force when fairly started, I have never seen one killed or even stunned. They no sooner touch the earth, than they are flopping off again at a great rate.

"It is a difficult matter to calculate the numbers that visit this small island annually, but they certainly number several thousand and if left unmolested by man the island would soon become too

small to accommodate their natural increase, but such is by no means the case. The native Aleuts know, almost to a day, when the first ones will arrive, and are there to meet them, invading the island armed with stout clubs, and every bird, Auklet or Murrelet, that is overtaken is promptly clubbed to death and thrown into a sack carried for this purpose. At each of these raids hundreds of these birds are killed, and as they are made frequently and throughout the entire season, it is astonishing that any remain. But this is not all; as soon as day dawns, the entire crew sets out to make a systematic search for eggs, which are well flavored and good eating, each one striving to get more than his mates; and as it makes no difference to a native whether they are fresh or on the point of hatching, everything goes. Fortunately it is impossible to find all the nests, or kill all the birds, so enough remain to stock the island again another season.

"By no means every island in this vicinity is occupied by Murrelets. Within 400 yards of the one of which I write is another of about the same size and topography, but strange to say, no Murrelets are found on it, although there are two or three small colonies of Auklets, the remainder of the island being given over to Leach's Petrels. Again on two other small islands, also near together, each containing about a couple of acres, and in every way alike, one is given over entirely to Auklets, while on the other the Murrelets have almost complete control. These facts cause me to believe that the birds always return to the island on which they have been reared.

"On June 23 our party returned to the island on which we first landed, and found to our great satisfaction that the Murrelets' eggs were more plentiful than on our former visit, and a few of them were taken. We also soon discovered that they were not especially particular in the selection of a nesting site. An abandoned burrow of Cassin's Auklet, a dark crevice in cliffs, under large broken rocks which had fallen from the latter, or under large tussocks of rank grass, with which the higher portion of the island was covered, would answer equally well. Under these almost solid bunches (the grass remaining from several previous years), the Murrelets would force their way, leaving only a slight hole in the mass, which usually was very hard to detect. After once gaining

an entrance into this matted vegetation and working their way in for two or three feet, a shallow cavity, about five inches in diameter and two or three inches deep, was scratched out and this was nicely lined with blades of dry grass of last year's growth, carried in from the outside, making a very neat and snug home, in which the two beautiful eggs, comprising a set, were deposited. Some of their nests were found fully two hundred yards from the water. In the other situations mentioned little and often no nest is made, and the eggs are deposited on the bare rocks, in the soft sand, or on the wet, muddy soil. I even took several sets on the bare ice at the bottom of some Auklets' burrows, the ground being still frozen, immediately beneath the grass and moss on July 3, when I left the island.

"The setting bird will sometimes leave the nest when danger threatens, but it will frequently allow itself to be taken from the eggs, and when brought to light it will screech, scratch, and bite with vigor. When released they cannot fly unless thrown into the air, and will then often fall back to earth. One evening, just at dusk, I was crouched in the grass waiting for a shot at a Peale's Falcon (*Falco peregrinus pealei*), who made regular trips to the island to prey on the Auklets and Murrelets, when I heard a very low but rather shrill whistle. Turning my attention to the spot from which it seemed to come, I listened; presently I heard it again, but was still unable to locate the bird, which I afterward found to be a Murrelet. Subsequent observations proved that this was a call-note uttered just about the time the setting bird expected the return of its mate, and was evidently uttered to attract his or her attention, for as far as my observations went, they, like the Auklets, exchange places nightly, and while one attends to the home cares, the other is usually a number of miles out at sea on the feeding grounds. This call-note is the only one I could attribute to this species while on land, and so ventriloquial are their powers, that in only two instances did I succeed in locating the nest from the sound. While out at sea, the Ancient Murrelet utters a peculiar piping whistle, entirely different from the one uttered while on the nest.

"What their food consists of at this time of the year I am unable to say, for when they returned to the land it was so far

digested that it was impossible for me to determine, and I did not have an opportunity to kill a specimen while feeding. But let it be what it may, it certainly gives the flesh quite an agreeable flavor, next, in my opinion, to that of a Cassin's Auklet, which is the tablebird *par excellence* among the sea fowl of the North Pacific. The egg, also, is excellent eating and is hardly surpassed in flavor by that of the domestic hen. Two eggs are laid to a set, the second is deposited after an interval of two or three days, and frequently three or four days elapse before incubation begins. Occasionally two birds will occupy the same nest; at least I have found three and four eggs in one, and I have also found one in the nest of a Red-breasted Merganser (*Merganser serrator*). During the day, while the breeding season is on, a very few birds may be seen near land, but off shore they will be met with in small flocks of from six to eight, and occasionally a flock of one hundred or more can be seen.

"I left the rookery on July 3, and was therefore unable to determine the period of incubation, or the time the young remain in the nest, but in former years off the coast of some of the Kuril Islands, I have seen numbers of old birds accompanied by half grown young, still unable to fly, about the middle of September, sometimes four or five hundred miles from land, thus proving that they must leave their breeding grounds when still very small. At that age, the young, like the old, are great divers, and no matter how long the parent remained below, or how far she dived, the young would always break water at the same time and in the same place, just at the old bird's tail. During the winter they scatter and can be found in small numbers most anywhere about or between the islands, and at this time they also associate with the Crested and Least Auklets (*Simorhynchus cristatellus* and *S. pusillus*), and the Marbled Murrelet (*Brachyramphus marmoratus*).

"Great numbers of these birds are taken by Peale's Falcon, who seems to be one of their principal enemies next to man. As I have already stated, the Murrelets are mainly found at some distance from land during the day, and here too, this Falcon pursues them, watching for a chance to seize any Murrelet he succeeds in driving from the water. After having secured its prey, the Falcon

circles about for a short time and then partakes of its meal. To do this he hovers, remaining almost stationary for several minutes at the time; in the mean time the prey is raised well up to the beak with both feet, and promptly devoured. When the Murrelets return to the land at nightfall, the Falcon is there also to meet them, and soon again secures his nightly repast."

The eggs of the Ancient Murrelets are quite large considering the size of the bird, while their odd and peculiar coloration gives them a rather unique appearance, and I am unable to point out those of any other North American species which they resemble at all closely, and on account of the remoteness of their principal breeding-grounds, they still remain quite rare in oölogical collections. In shape they vary from elliptical ovate to elongate and cylindrical ovate, the elongated ovates predominating. Their shell is fine-grained, moderately strong, although rather thin, and it shows little or no gloss. They are rather difficult to describe accurately, their ground color being variable and of subtle tints not readily expressed on paper, ranging from a bluish milky-white through the different shades of cream color, vinaceous, olive and salmon buffs to a rich vinaceous cinnamon and ecru-drab color. They are generally moderately well flecked, blotched, or spotted with small irregular shaped markings of different shades of brown, fawn and isabella color, mixed with more subdued shades of ecru-drab, lavender, and lilac-gray. The markings are distributed over the entire surface, and are usually heaviest about the larger end of the egg, but never so profuse as to hide the ground color. In an occasional specimen, they show a tendency to run into irregular and mostly longitudinal lines or tracings; in others these markings are more bold, coarse, and fewer in numbers, and a single specimen before me shows comparatively few and rather faint markings.

On the whole the egg of the Ancient Murrelet is a rather characteristic one, and not readily mistaken for anything else. The first specimens to find their way into the Oölogical Collection of the U. S. National Museum were obtained by Dr. W. H. Dall of the U. S. Coast Survey, at the Chica Islets in Akutan Pass, near Unalaska Island, Alaska, on June 2, 1872. In his interesting notes on the Avi-fauna of the Aleutian Islands, from Unalaska Eastward, published in the Proceedings of the California Academy

of Sciences on Feb. 8, 1873, the Doctor briefly refers to the breeding habits of this then little known species, and the eggs taken by him there were subsequently described in the 'Water-birds of North America,' by Baird, Brewer and Ridgway (Vol. II, 1884, p. 505).

The average measurement of 45 eggs of this species, now before me, is 2.41 by 1.52 inches, the largest specimen measuring 2.51 by 1.57 inches, the smallest 2.27 by 1.39 inches.

DESCRIPTION OF TWO NEW SPECIES OF BIRDS FROM SAN DOMINGO.

BY CHARLES B. CORY.

Among the birds brought from San Domingo by Mr. George K. Cherrie are two interesting novelties which I have named as follows:—

Hyetornis fieldi, sp. nov.

Type, F. Mus.—Field Columbian Museum, Chicago, Ill. *Male* ex Maniel, San Domingo, April 5, 1895. Geo. K. Cherrie, collector.

Sp. Char.—*Male*: Upper parts, including upper tail-coverts, slaty, showing a faint trace of olive in some lights; a dusky stripe in front of the eye; throat, breast, and upper belly chestnut brown, belly tawny becoming pale on the crissum; primaries deep chestnut brown shading to olive at the tips; under wing coverts tawny; shafts of quills (except the first) strongly tinged with rufous brown; under surface of primaries and secondaries rufous shading to slaty olive at tips; tail-feathers (except two central ones) bluish black tipped with white and shading to pale olive at the base; two central tail-feathers pale olive becoming brownish at tips; bill dark showing a tinge of dull yellow at middle of lower mandible; legs and feet black.

Length, 16.75; wing, 6.50; tail, 10.50; bill, 1.30; tarsus, 1.50 inches.

I have named this fine species in honor of Mr. Marshall Field, the founder of the Field Columbian Museum of Chicago.

***Elainea cherriei*, sp. nov.**

Type, F. Mus. — Field Columbian Museum, Chicago, Ill. *Male* ex Calare, San Domingo, January 31, 1895. Collected by George K. Cherrie.

Sp. Char. — *Male*: Base of crown feathers white, similar to *E. fallax* of Jamaica, which it approaches somewhat in size and coloration. Upper parts greenish olive; tail-feathers dark brown showing edging of pale olive at base; the quills are brown and (except the first) are narrowly edged with pale olive; secondaries edged with greenish yellow on outer webs; the tertiaries are edged with dull white; under surface of wing pale brown, the feathers showing pale yellowish white edging on inner webs; throat gray becoming olive on the breast and shading into pale yellow on the belly, sides, and under tail-coverts; tail brown, the feathers narrowly edged with olive green; wing-coverts tipped with whitish forming two well marked bands; upper mandible dark brown; under mandible horn color, dark at tip; feet black.

Length, 5.10; wing, 2.80; tail, 2.75; tarsus, .75; bill, .30 inches.

I have named this species in compliment to Mr. George K. Cherrie, its discoverer.

Among the species taken by Mr. Cherrie there are several which are especially interesting, such as the previously unique *Myiadestes montanus* Cory, several examples of which were procured, and a specimen of *Colinus cubanensis*, being the first record for San Domingo.

Mr. Cherrie collected nearly two thousand birds. Those which are of especial interest are: —

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|--|--|
| <i>Hyetornis fieldi nobis.</i> | <i>Conurus chloropterus (Souancé).</i> |
| <i>Elainea cherriei nobis.</i> | <i>Pitangus gabbii Lawr.</i> |
| <i>Colinus cubanensis (Gould).</i> | <i>Temnotrogon roseigaster (Vieill.)</i> |
| <i>Accipiter fringilloides Vig.</i> | <i>Corvus solitarius Würt.</i> |
| <i>Loximitris dominicensis Bryant.¹</i> | <i>Chætura zonaris (Shaw).</i> |
| <i>Myiadestes montanus Cory.²</i> | <i>Euphonia musica (Gmel.).</i> |
| <i>Spindalis multicolor (Vieill.).</i> | <i>Calyptophilus frugivorus Cory.</i> |

¹ Fine adult specimens.

² Previously known only from the unique type.

THE STATUS OF *HELEODYTES AFFINIS*.

BY A. W. ANTHONY.

IN a short paper on the *Heleodytes* of Southern and Lower California, published in 'The Auk' for July, 1894 (XI, pp. 210-214) I suggested the advisability of reducing the species *affinis* to the rank of a subspecies of *brunneicapillus*. Since the paper was published I have secured a further series of the Lower California birds, as well as a number of equally interesting specimens from along the border in southern San Diego County, California, all of which have strengthened my previously expressed conviction that the Cape St. Lucas bird was but a subspecies of the northern *brunneicapillus*, connected through the northern half of the peninsula by *bryanti*.

Winter birds from San Fernando have the dark markings of the lower parts somewhat hidden by the light tips of the fresh unworn feathers and were mentioned in my paper on the *Heleodytes* (l. c.) as being rather nearer *affinis* than *bryanti*. However, a series of spring and summer birds taken at a later date prove the Cactus Wrens of that region to be much nearer *bryanti*. How much farther south that race extends I am, as yet, unable to say, but the characteristics of my southern skins all point toward an intergradation with *affinis* at a point at no great distance south of San Fernando. Therefore the St. Lucas Cactus Wren should stand as *Heleodytes brunneicapillus affinis*.

The Cactus Wrens collected by Dr. E. A. Mearns between the Colorado River and Campo, along the Mexican boundary, are practically indistinguishable from birds from Arizona, New Mexico and Texas but are easily separated from those taken along the coast of San Diego County, by the spotting of the lower parts, which is always linear in the inland form and more ovate or rounded in coast specimens. The tail feathers of the eastern specimens are seldom barred beyond the lateral feathers, but usually more or less barred throughout in those from west of the Cuyamaca Mountains. Should the type of Lafresnaye's *brunneicapillus* prove to have been obtained in California it will probably be necessary to recognize the eastern bird as a separate race, as suggested in my notes on the species (l. c.).

RECENT LITERATURE.

Birdcraft.¹—Readers of Mrs. Wright's 'Friendship of Nature' will heartily welcome her as a contributor to ornithological literature. We have been so surfeited with local lists and stereotyped annotations, that the originality with which she treats her subject is refreshing. Untrammelled by traditions, and with a style having no taint of clinging technicalities, she has modelled her volume after her own idea, with results no one can fail to applaud. Introductory chapters on 'The Spring Song,' 'The Building of the Nest,' and 'The Birds of Autumn and Winter,' picture in a charming manner the principal events of the bird year. Insensible indeed must he be who can read these chapters without being affected by the enthusiasm which pervades them. With the touch of a genuine bird-lover, a touch which reminds us of Michelet, she describes the return of the feathered host from its winter quarters, the homecoming of the familiar garden dwellers, their nest building, the appearance of the young, and finally their retreat with their parents as the season wanes. How earnestly we wish these chapters could be placed in the hands of every boy for whom 'ornithology' means a collection of empty egg-shells! What a new point of view they would give him! Birds are not enemies to be robbed, persecuted, or killed, but friends whose acquaintance may prove an endless source of pleasure.

After some suggestions on 'How to Name the Birds,' which are practical and to the point, we have a 'Synopsis of Bird Families,' and on page 57 reach the 'Bird Biographies.' The succeeding 223 pages are devoted to the biographical treatment of 200 species of birds of the Northeastern States.

The plan adopted is admirable for its clearness, separate paragraphs being devoted to 'Length,' 'Male and Female' (or either alone), 'Song,' 'Season,' 'Breeds' (= breeding range) 'Nest,' 'Eggs and Range.' This is followed by a sketch of the bird's characteristic haunts and habits, and here Mrs. Wright is at her best. Combining rare literary skill with a keen appreciation of a bird's distinctive traits, she has given us pen pictures of her feathered favorites which will stand for all time.

It would indeed be a graceless task to criticise in detail so pleasing a volume. Mrs. Wright's observations have been largely confined to her garden, and that wider experience would in some cases cause her to alter

¹ Birdcraft | a Field Book of two hundred Song | Game, and Water Birds | By | Mabel Osgood Wright | Author of "The Friendship of Nature" | With Full-page plates containing 128 Birds in their natural colors, and other Illustrations | New York | Macmillan and Co. | and London | 1895 | All rights reserved. 8vo. pp. xvi + 317, Coll'd pll. x, Uncoll'd v. Cloth, \$3.00, net.

her views and quote or compile with more discrimination, we feel sure she would readily admit.

The illustrations have been "adapted and grouped from Audubon's 'Birds of America,' Dr. Warren's 'Birds of Pennsylvania,' DeKay's 'Ornithology of the State of New York,' and . . . Fisher's 'Hawks and Owls of the United States.'" We wish we could say that they are worthy the text. The colored plates show that the process by which they were reproduced is not available for the purposes of ornithological illustration. The half-tone black and whites are excellent when they are from good originals, as for example, Fisher's 'Hawks and Owls'; others are from DeKay and there seems to us no excuse for using these effigies at this late day. We all know, however, that publishers rarely look at this matter from the author's standpoint, and we can wish Mrs. Wright's book no better fortune than that in the future editions it is sure to reach, it may have illustrations in keeping with the exceptionally high character of the text — F. M. C.

Chapman's 'Handbook of Birds of Eastern North America.'¹ — Falling on a time of growing popular interest in our native birds, this volume which, in its fullest sense, justifies the title of 'Handbook,' is marked for a career of extended usefulness.

The region covered by the work — North America east, say, of the meridian of the Mississippi River — although not co-terminous with any natural faunal tract, forms, nevertheless, a convenient and sufficiently definite geographical field. The more formal treatises on North American ornithology, which cover the region by inclusion, were not designed to slip into easy use outside of a specially interested class. Therefore, the considerable company of interested but not-too-devoted bird-lovers is to be especially congratulated on the appearance of this work.

"I have not addressed an imaginary audience, nor have I given my prospective readers what, theoretically, I thought they ought to have, but what personal experience with students of birds has led me to believe

¹ Handbook of Birds | of Eastern North America | with Keys to the Species | and Descriptions of their Plumages, Nests, and Eggs | their Distribution and Migrations | and a Brief Account of their Haunts and Habits | with Introductory Chapters on the | Study of Ornithology, How to Identify Birds | and How to Collect and Preserve Birds | their Nests, and Eggs | By Frank M. Chapman | Assistant Curator of the Department of Mammalogy and Ornithology | in the American Museum of Natural History, New York City; | Member of the American Ornithologists' Union, etc. | With Full-page Plates in Colors and Black and White | and Upward of One Hundred and Fifty Cuts | in the Text | New York | D. Appleton and Company | 1895. 12mo. pp. xiv + 421. 20 full-page pls.; 115 figs. in text. Library edition, cloth, \$3.00; pocket edition, flexible morocco, \$3.50.

would meet their wants." So writes Mr. Chapman in his preface. Those whose experience has likewise placed them in touch with both the technical and popular sides of bird study, will agree that this purpose has been most happily achieved. The conveniently sub-divided chapters of the introduction, brief as they are, abound in helpful suggestions to the student. Those who take an æsthetic delight only in 'bird life' may here learn how best to study birds out of doors, those of more mechanic turn, how to form collections and prosecute the study along approved scientific lines. An interesting feature in this connection is a series of chronological lists showing the migrating and nesting times of birds in the vicinity of New York City.

The more systematic part of the work begins with a key to orders and families, which proceeds by simple definitions and appropriate illustrations in the text. This, while admirably suited to its immediate purpose, will incidentally convey to the uninitiated something of the meaning of classification in general, and of the fundamental lines of division which underlie the commonly accepted distinctions of 'tribes' and 'kinds.' The spacious keys beyond are models of their kind, and evidence a great amount of painstaking and conscientious care. Nor has their usefulness been limited by designing them for spring males alone; females and immature birds are included.

The aim of the author to employ throughout the simplest English possible to the special subject has been agreeably realized. The descriptions, for their purpose, lose nothing of definiteness from the ruling absence of technical terms. Much has been done to render less shadowy the mazy region of female and immature plumages, where many a beginner, having put his hand eagerly to the plow, has turned back.

No attempt has been made to meet the problem of nestling plumages, but this scarcely explains why noteworthy markings on certain migrating autumn birds are left unnoticed. We may instance the white-bordered inner secondaries of the White-breasted Swallow, the peculiar rusty-backed state of the Wood Pewee, the buffy spotting in the scapular and coverts regions seen in the *Hylocichla*.

Following the descriptions, range and characters of nest and eggs are set forth as fully as brief, general statements will permit. The breeding ranges and the winter habitats are specially indicated, as far as known,—a commendable feature. While it may seem ungracious to ask for more where so much is given, we think that in the matter of breeding range, not quite enough allowance has been made in the case of some species for their southward extension along the Alleghanies. The student who reads of the Magnolia and Black-throated Blue Warblers, that their general breeding range extends from, say, northern New England, southward, along the *crests* of the Alleghanies, would scarcely be prepared to find both species common summer birds along valleys and lower slopes in the Catskills or in the plateau region of Pennsylvania. With the Canadian Warbler the case is similar, and the Black-poll and Yellow-rumped

Warblers have been recorded as summer birds at points far south of "Northern New England." The ascertained breeding range of the Yellow-bellied Flycatcher should also have been allowed to include the Catskills, if not a more southern point.

An important feature, of both local and general interest, is the dates of arrivals and departures of migrants at Washington, at Sing Sing, and at Cambridge, contributed respectively by Mr. C. W. Richmond, Dr. A. K. Fisher, and Mr. William Brewster. Similar records for the water birds on Long Island have been supplied by Mr. William Dutcher. A further illustration of the modern principle of co-operation is seen in the biographies, many of which have been contributed by well-known writers on birds, whose names are signed to their contributions. By far the greater number of these sketches have, however, been written by Mr. Chapman himself. They are in all cases brief, and aim to present the bird in life with especial reference to haunts, notes and habits—such facts connected with a bird's individuality as would be likely to be of assistance to the observer in the field.

The illustrations are numerous and excellent, consisting of full-page engraved half-tones, and pen and ink drawings in the text, prepared expressly for their present use. A color chart for reference in connection with the descriptions is a useful adjunct.

The book as a whole presents us with the scientific and popular in singularly harmonious union. Mr. Chapman has produced a noteworthy contribution, both to general and to educational ornithology. His volume takes rank among the authoritative works on North American birds.—E. P. B.

Minot's Land-Birds and Game-Birds of New England. Second Edition.¹—Mr. Brewster, in his editorial preface, gives a fair and appreciative estimate of the value of Mr. Minot's well-known manual, from which we quote: "The 'Land-Birds and Game-Birds of New England' is, in many respects, a remarkable and interesting book. Written by a youth of seventeen, with, as I am assured, almost no outside help of either a literary or a scientific kind, it found favor at once, and for nearly twenty years has been ranked among the authorities on the subject of which it treats. It has evidently owed this popularity partly to the large amount of original matter which it contains, partly to the pleasant style in which it is written, and in no small degree, apparently, to the

¹ The | Land-Birds and Game-Birds | of | New England | with Descriptions of the Birds, their Nests | and Eggs, their Habits and Notes | With Illustrations | By | H. D. Minot | Second Edition | Edited by William Brewster | [Motto=4 lines and publishers' monogram] Boston and New York | Houghton, Mifflin and Company | The Riverside Press, Cambridge | 1895. 8vo. pp. xxiv + 492, frontispiece, 1 pl., and 22 ill. in text. Cloth, \$3.50.

attractive personality of Mr. Minot himself. Most of the biographies relate to his own experience or impressions, and in the main they are exceedingly well done, for, in addition to the essentials of good composition . . . they are not wanting in touches of a somewhat quaint humor and of unmistakably sincere and elevated sentiment. The author had a clear head, a true heart, and a well defined purpose, combined with an amount of literary taste and ability very rare in one so young. He was deeply in earnest, full of warm yet reverent love of nature, wholly unconscious of, or indifferent to, certain conventional methods of investigation and expression, yet in the main careful in observation, temperate of statement, and singularly logical and dispassionate in argument."

As Mr. Brewster further states, Mr. Minot's book "was not, when it first appeared, either a comprehensive or an exhaustive treatise, and to attempt to make it so now, when the sum of knowledge of New England ornithology is at least four-fold what it was in 1877, would tend to obscure, if not to destroy, the original character of the book, besides swelling its bulk to far beyond the limits of desirability." With a proper appreciation of his editorial functions in a case like the present, Mr. Brewster left the original text practically intact, his own additions being made in footnotes distinguished by his initials. The notes and additions given by Mr. Minot in an Appendix have been interpolated in the body of the work as footnotes to the matter to which they relate; a few transpositions of words and sentences have been made, in accordance with marginal notes in Mr. Minot's personal copy of the work, and there have been slight emendations of punctuation. The principal changes beyond this have been to modernize the technical names by substituting those of the A. O. U. Check-List for those originally used, where they were different.

Mr. Brewster's own notes relate mainly to the distribution of the species, and are uniformly supplied for all of the species treated, and are independent of the original text rather than a revision of Mr. Minot's often very inadequate treatment of this part of the subject. This, of course, gives us an annotated list of the Land-Birds and Game-Birds of New England, so far as the latter were covered in the original work, giving their manner of occurrence, so far as at present known, throughout New England. As no higher authority could have been selected for the task, these annotations not only greatly increase the value of the book, but give in a condensed form a summary of the present knowledge of the distribution, migration seasons, and breeding ranges of New England birds, from the Thrushes to the Grallæ, plus two species—the Snipe and the Woodcock—of the latter. Corrections of the comparatively few misstatements in the text are also made in footnotes. Section G of the Appendix, forming pages 466-480, is also by Mr. Brewster, and treats chiefly of species added to the New England list since the publication of the first edition of the work—some 28 in number. This important supplemental matter gives a detailed biography of Bicknell's Thrush; a page is given to the Palm

and Yellow Palm Warblers; another to the Redpolls, and still another to the incursion of Evening Grosbeaks in 1890. The puzzling group of Gyrfalcons is also treated at some length, diagnoses being given of the four forms occurring in New England, with notes on their distribution and a reassignment of the New England records, based on a personal examination by Mr. Brewster of nearly all the extant specimens.

An excellent portrait of the author forms an appropriate frontispiece to the present edition, which also contains a short biographical notice of this remarkable man, who met his death in a railroad accident in Pennsylvania, November 14, 1890. (Cf. Auk, VIII, 1891, p. 121).—J. A. A.

Degen on the Evolution of the Bird's Wing.¹—Mr. Degen finds his text in a feather of the wing which he terms "carpal covert" and ranks with the major cubital series. It is situated at the carpal joint, its exact position varying in different groups, and is apparently not associated with a remex. A vestigial or plumaceous feather is generally found lying beneath it. The late Mr. Wray called attention to these feathers and considered the former to be a median covert while the vestigial feather he classed as the major covert of the first metacarpal remex,—errors which Mr. Degen corrects. Mr. Degen regards this condition as analogous to aquitocubitalism and predicts that a reduced cubital remex may still be found. Assuming that among archornithic birds all the digits bore remiges he reasons that a subsequent fusion of the metacarpals has resulted in a crowding and consequent decrease in number and readjustment in position of the digital remiges and finds here an explanation of both aquitocubitalism and the vestigial carpal remex.

The paper is a noteworthy contribution to pterylography and should especially appeal to those who seek to find in this branch of ornithology something more than an aid to classification.—F. M. C.

Bulletins 4 and 5 of the Wilson Ornithological Chapter.—Bulletin No. 4² contains the reports of some thirty observers, living in as many different localities, on the manner of occurrence and times of migration of about forty-five species of Warblers. The notes are largely from stations in the upper Mississippi Valley and New England, though one contributor writes from California and another from Texas. *Dendroica kirtlandi* is recorded from Winnebago County, Illinois, May 25, 1894, and there are other records of special interest, while the report as a whole

¹ On Some of the Main Features in the Evolution of the Bird's Wing. By Edward Degen. Bull. Brit. Orn. Club, II, 1894, pp. 33, pl. I, and 6 figs. in text.

² Bulletin No. 4, Wilson Ornithological Chapter of the Agassiz Association. Record of the work for 1893 and 1894 on the Mniotiltidæ. By Lynd Jones, Chairman of the Committee. Oberlin, Ohio, January 15, 1895. 12mo. pp. 22.

will prove of value to students of the migration and distribution of these interesting birds.

Bulletin No. 5¹ is an admirable paper on the nesting habits of the American Crow, based on notes from observers representing twenty-eight States and two Provinces.

In the preliminary remarks and reports upon the character, habits, and food of Crows, the author states that he "fully believes the benefits derived from their destruction of injurious insects, rodents, etc., and their work as scavengers, largely offsets the damage done by them, if it does not over-balance it." Under 'nidification' we have paragraphs devoted to the situation, position, height, construction, composition, and measurements of the nest, while a succeeding section treats with equal detail of the eggs. The matter is well selected and the author's remarks upon the causes which influence the position and construction of the nest, the number and size of the eggs, etc., are worthy the attention of all students of philosophic ornithology.

These two papers evince in a most satisfactory manner the results which may be obtained by well directed, coöperative effort.—F. M. C.

Clark on the Pterylography of North American Goatsuckers and Owls.²

—Mr. Clark's paper is a welcome contribution to a much neglected subject. Of the Caprimulgi the genera treated are *Phalacroptilus*, *Antrostomus*, *Nyctidromus*, and *Chordeiles*. The pterylosis of each is described in detail, figured and compared. While found to be the same in plan in all, the genera all differ from each other in more or less important details. Among the Striges the pterylosis of only *Asio accipitrinus* is figured in full, with that of the head of *Megascops asio*, Nitzsch having already figured the pterylosis of most of the other genera, and Dr. Shufeldt that of *Speotyto*. The leading points of the subject are, however, reviewed, and comparisons made between the different genera, and also with the Caprimulgi. In these comparisons perhaps rather too much stress is laid upon unimportant details, which in some cases may be merely coincidences of no particular suggestiveness rather than features entitled to serious taxonomic consideration. Such perhaps is the relative length of the primaries, and the number and relative length of the rectrices, features variable in otherwise closely related genera in a large number of families.

Mr. Clark concludes from his study of the pterylography of these groups "that the Caprimulgi are related to Striges, and not very distantly

¹ Bulletin No. 5, *Ibid.*, The American Crow (*Corvus americanus*). With Special Reference to its Nest and Eggs. By Frank L. Burns, Oberlin, Ohio, March 15, 1895. 12mo. pp. 41.

² The Pterylography of certain American Goatsuckers and Owls. By Hubert Lyman Clark. Proc. U. S. Nat. Mus., Vol. XVII, pp. 551-572. June, 1895.

either—probably a branch from the early part of the Strigine stem." The weight of authority, he admits, is directly opposed to this view; and he considerably adds, that "if the other characters are all against" his conclusions based on "a comparative study of the pterylography of the two groups as represented in North America," they should be set aside. Mr. Clark is doing careful work in a useful field, but he hardly appears to realize that it is rather early to generalize on broad questions when, as in these two groups, and particularly in the Caprimulgi, so small a portion of the field has been covered by his investigations. It is well to have a good collection of facts before entering too freely into the field of speculation.—J. A. A.

Verrill on Antarctic Birds.¹—This valuable paper is based upon the notes and collections of Mr. George Comer who, while on sealing voyages, visited South Georgia from October 9, 1885, to February 11, 1886; Kerguelen Island from November 24, 1887, to February 5, 1888; and Gough Island from August 22, 1888, to January 23, 1889. This long period gave Mr. Comer unequalled opportunities for observation and his notes on the breeding season are beyond comparison more detailed as to dates than any we have previously had from this region. Twenty species belonging to the following families are treated: Anatidæ, one; Rallidæ, one; Chionidæ, one; Diomedidæ, four; Procellariidæ, four; Pelecanoididæ, one; Stercorariidæ, one; Laridæ, three; Sphenicidæ, four. Almost all of these are represented by skins and eggs. One, *Porphyrio comeri*, a flightless Gallinule, common on Gough Island, has been made the type of a new genus by Dr. J. A. Allen², while *Thalassogeron eximius*, an Albatross allied to *T. chlororhynchus* and *T. culminatus*, is here described as new and figured.

Mr. Comer reports two kinds of small sparrow-like birds from Gough Island and a third kind from Kerguelen Island, but unfortunately did not procure specimens of these, doubtless, undescribed species.

The paper, which concludes with extracts from Mr. Comer's journals, is a most important addition to our scanty knowledge of Antarctic birds.—F. M. C.

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¹ Notes on Birds and Eggs from the Islands of Gough, Kerguelen, and South Georgia. With two plates. By G. E. Verrill. Trans. Conn. Acad. IX, 2, Mch. 1895, pp. 430-478.

² Bull. Am. Mus. Nat. Hist., IV, 1892, p. 57.

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GENERAL NOTES.

Brünnich's Murre near Johnstown, New York.—I recently examined a specimen of Brünnich's Murre (*Uria lomvia*), that was taken about thirty miles north of this place. The bird seemed somewhat exhausted, and was captured alive.—DONALD FRASER, *Johnstown, N. Y.*

Gavia alba on Long Island, N. Y.—In the summer of 1893, Mr. John C. Knoess, taxidermist, of Riverhead, Long Island, called my attention to a "rare gull" which he had received and mounted January 5, 1893, for John Goldsworth of Sayville, Suffolk County, Long Island. From the

description furnished I concluded it must be an adult Ivory Gull. To satisfy myself as to the identity of the bird I visited Mr. Goldsworth and saw the specimen, which proved to be an adult *Gavia alba*. Mr. Goldsworth informed me that he shot the bird while he was rigged out for ducks in an ice hole on Great South Bay, near Sayville.—WILLIAM DUTCHER, *New York City*.

Probable Occurrence of *Creagrus furcata* off San Diego, California.—

On April 12, 1895, I left the harbor of San Diego for the Coronado Islands, eighteen miles south, with the intention of spending several days among the sea birds. Just outside the harbor three Gulls were seen that I could not identify, owing partly to the distance. While their general appearance was quite different from that of any species with which I am familiar, they would doubtless have been assigned to the long list of unrecognized, had not an incident occurred on our return trip that furnished food for reflection for several days. On the morning of the 14th the wind was blowing very strong and the sea running so high that it was decided to return to San Diego. When about half way from the islands to Point Loma, a Gull passed the sloop at a distance of about two hundred yards, giving me an excellent opportunity for *seeing*, but with the heavy sea that was running, no chance at all for *securing* what I think was the same species that I saw two days before, and am reasonably sure was *Creagrus furcata*.

The black head and pale mantle were very plainly to be seen, but unfortunately I could not be sure that the tail was forked.

Of course, without having secured the bird, the record is open to considerable question, but I am confident that sooner or later, some one more fortunate will secure the species within our borders and replace the name on our list.—A. W. ANTHONY, *San Diego, Calif.*

History of a Wandering Albatross.—The Museum of Brown University possesses a specimen of the Wandering Albatross or 'Goney' (*Diomedea exulans*) to which is attached the following interesting label:

"December 8th, 1847. Ship Euphrates, Edwards, New Bedford, 16 months out, 2300 bbls. of oil, 150 of it sperm. I have not seen a whale for 4 months. Lat. 43° 00' South. Long. 148° 40' West. Thick foggy with rain."

On the opposite side it reads:

"This was taken from the neck of a Goney, on the coast of Chili, by Hiram Luther, Dec. 20th, 1847. In Lat. 45° 50' South. Long. 78° 27' West. Taken out of a small bottle tied round the bird's neck."

The shortest distance between Captain Edwards's position, about 800 miles east of New Zealand, and Captain Luther's position off the coast of Chili in the vicinity of Juan Fernandez, is about 3400 miles. The bird, therefore, covered at least this distance in the twelve days which intervened between its release and capture. It is not probable, however,

that it flew directly from one point to the other, but in coursing to and fro while searching for food it doubtless added hundreds of miles to its journey. Accompanying the original label is a clipping from 'The Fraternal Union,' Vol. I, No. 2, Bristol, R. I., Dec. 16, 1875, by W. J. Miller, in which it is stated:

"Captain Luther was master of the whaling barque Cachelot of Mattapoiset, Mass., and subsequently on the same voyage fell in with Capt. Edwards, and showed him the paper. Captain Edwards at once recognized it, and confirmed the date and other circumstances as stated."

We do not often have so authentic a record of the powers of flight and extended range of individuals of this well-named bird. For permission to publish it I am indebted to Prof. H. C. Bumpus, Assist. Director of the Brown University Museum.—FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

Another European Widgeon (*Anas penelope*) in Indiana.—Since recording the specimen taken in 1893, in the April number of 'The Auk' (Vol. XII, p. 179), I have secured another taken in the same State. This one, a young male, was killed on the Kankakee River marshes, near English Lake, Indiana, on the 7th of April, 1895. It was shot from a small flock of Baldpates by Mr. J. F. Barrell, who, at the time, was shooting about half a mile from me in the same marsh. He kindly presented me with the bird which I now have in my collection. This specimen makes the fifth recorded for the interior.—RUTHVEN DEANE, *Chicago, Ill.*

Record of a Third Specimen of the European Widgeon (*Anas penelope*) in Indiana.—I have recently examined a fine adult male of this Duck, at the office of the 'American Field' in Chicago. It was killed in the spring of 1881, or 1882, on the marshes of the English Lake Shooting and Fishing Club, at English Lake, by the late Samuel H. Turrill.

I am indebted to Dr. Nicholas Rowe, editor of above paper, for this interesting information. It is a little strange that our foreign visitors to this State should all have been captured in one locality, at English Lake, at different periods.

This specimen makes the sixth record for the interior.—RUTHVEN DEANE, *Chicago, Ill.*

The Old Squaw (*Clangula hyemalis*) in Colorado.—While this Duck occurs regularly in greater or less numbers on Lake Michigan in winter, and is occasionally found on the larger rivers and lakes of the adjacent States, I can find no record of its occurrence west of the Mississippi River. I am indebted to my friend, Mr. John B. Sibley, of Denver, Colorado, for information regarding the capture of a pair, male and female, which he shot on McKay Lake, sixteen miles north of Denver, on November 13, 1892.

Mr. Sibley, who is an ardent sportsman, and shoots large numbers of ducks every fall in this same location, writes that he has never seen but this one pair of Old Squaws, though he has heard of two single birds killed at different times in the State. The pair in question, Mr. Sibley had mounted, and they are now in possession of a friend in Denver.—RUTHVEN DEANE, *Chicago, Ill.*

The Old Squaw (*Clangula hyemalis*) on the Coast of South Carolina.—The winter of 1894-95 was remarkable for its severity. The thermometer in December was 8° above zero, and in February 15° above zero. Several flocks of Old Squaws were daily seen near the ocean, and among them many adult males. They were very wild, and it was very difficult to get a shot at them, even at long range. On February 26, I was fortunate enough to shoot an adult female. This was the only one taken. I can find but one record of this duck being taken in the State, viz.: Smythe, *Auk*, Vol. V, 1888, p. 203.—ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

Aythya marila or A. m. nearctica?—In separating the American Scaup Duck as a subspecies from its European cousin Dr. Stejneger (*Orn. Expl. Kamtsch.*, 1885) gives as the characteristic difference between the two forms the coloring of the primaries from the fourth quill, which have "a distinct white area on the inner web" in *A. marila*, and "a grayish—but not white—area on the inner web" in *A. m. nearctica*. *A. marila* has not, I believe, been as yet recorded from this country.

Early in December last Mr. A. H. Verrill called my attention to the extensive white spaces on the primaries of a male Scaup Duck, which had been sent him by Mr. E. M. Cooper of Stony Creek, Conn., whom we had asked to forward us ducks in the flesh, and suggested that it might be the European bird. We determined to investigate the subject, and requested Mr. Cooper to send us male Scaup Ducks noticeably white on the primaries. The following small series was selected by Mr. Cooper in accordance with our wishes, all having been killed at Stony Creek on or about the dates given with the specimens, and most of them having been shot by Mr. Cooper himself.

In the following descriptions of this bird I have merely attempted to point out the main differences between them, giving particular attention to the coloring of the light spaces on the primaries.

No. 1330, Coll. L. B. Bishop, Dec. 15, 1894. Interscapulars brown spotted with white, with a few black feathers spotted with white intermixed. Feathers of chest whitish barred with brown and tipped with white, a few black feathers interspersed; flanks white heavily vermiculated with black, mixed with many entirely brown feathers; abdomen posteriorly hair brown with most of the feathers tipped with white. Rump, tail-coverts and tail brown with many black feathers interspersed, under tail-coverts tipped with white. Pale space on inner web of primaries becoming distinctly white only on the inner edge of the basal por-

tion of all except the outer and inner two; distinctly white space on the outer web of the six inner primaries.

No. 1329, Coll. L. B. Bishop, Dec. 14, 1894. Like last, except brown barring in feathers of chest indistinct, and few brown feathers in interscapular region. Rump, tail-coverts and tail black, with only a few brown feathers on rump and under tail-coverts. Distinct white space only on edge of inner web of fifth, sixth, seventh and eighth primaries, and on outer web of inner five.

No. 1348, Coll. L. B. Bishop, Jan. 3, 1895. Like last, except black of head and neck extending farther on chest, the posterior feathers of which are tipped with white; no brown on chest. Tail brown tipped with whitish. White on inner web fairly distinct in fifth, sixth, seventh and eighth primaries, as an edging on fourth and ninth, and on outer web of inner six.

No. 1349, Coll. L. B. Bishop, Jan. 4, 1895. Like last, except black of head and neck extending almost on third of body, with a few feathers vermiculated with white, but none brown, in interscapular region, and a few tipped with white on the chest. Rump, tail-coverts and tail black, a few feathers on under tail-coverts barred with white. Abdomen posteriorly white vermiculated with black. Fifth, sixth, seventh and eighth primaries distinctly white on inner web, the white appearing also toward base of third and fourth, and as an edging on ninth and tenth; inner four white on outer web.

No. 1350, Coll. L. B. Bishop, Jan. 4, 1895. Like last, except flanks only faintly vermiculated with black, with a few brown feathers posteriorly. Inner web of second, third, ninth and tenth primaries edged with white, and with fairly distinct white space on fourth, fifth, sixth, seventh and eighth; inner seven with white on outer web.

No. 1328, Coll. L. B. Bishop, Dec. 12, 1894. Like last, except black of head and neck extending farther posteriorly; no white tips to feathers of chest, and only one brown feather on left flank; black vermiculation of flanks more distinct. No white-tipped feathers on under tail-coverts. White distinct on inner web of all the primaries but narrow on ninth and tenth, and on outer web of inner six.

No. 1354, Coll. L. B. Bishop, Jan. 11, 1895. Like last, except faint edging of white on posterior feathers of chest; flank pure white faintly vermiculated with black. Inner web of all the primaries with large space of pure white extending on six inner quills well toward tip of feather, the white mixed with a little gray on ninth and tenth feathers; outer webs distinctly white on six inner quills.

In comparing these specimens it will be noticed that they vary greatly in the coloring of the inner webs of the primaries, Nos. 1330 and 1329 coming fairly under the head of *A. m. nearctica*, Nos. 1348, 1349, and 1350 being intermediate, and Nos. 1328 and 1354 typical examples of the old world form *A. marila*. If, however, all except Nos. 1328 and 1350 are left out of consideration on account of their obviously immature plumage the

latter two still remain as American birds with white areas on the inner web of the six inner quills.

Having procured this series I asked Mr. Cooper to select birds which have particularly dark primaries. During February the ice at Stony Creek made it impossible to obtain any of this species, but early in March Nos. 1369 and 1370 were received from Mr. Cooper, No. 1373 having been taken by another sportsman.

No. 1369, Coll. L. B. Bishop, March 1, 1895. Like No. 1354, except no white on inner web of any of the quills; interscapulars not as white as in No. 1354.

No. 1370, Coll. L. B. Bishop, March 1, 1895. Like No. 1354, except no white on inner web of any of the quills.

No. 1373, Coll. L. B. Bishop, March 7, 1895. Like No. 1354, except only a narrow edging of white on inner web of six inner quills.

Nos. 1369 and 1370 appear to be typical examples of *A. m. nearctica*, as Nos. 1328 and 1354 were of *A. marila*; consequently we have from the same locality typical examples of both the European and American subspecies, with a number of intermediate forms. The number of adult birds in this series is probably insufficient to decide whether the European variety occurs in Long Island Sound as a winter resident, the American appearing mainly as a migrant, or if the subspecies *A. m. nearctica* is untenable; but in either case *A. m. marila* must be admitted to the list of American birds. — LOUIS B. BISHOP, M. D., *New Haven, Conn.*

An Apparently Undescribed Plumage of *Oidemia perspicillata*. — An adult female Surf Scoter, which I collected at Guilford, Conn., in the fall of 1893, seems to merit description as differing noticeably from the characteristics of the adult female as given by standard authors.

No. 956, Coll. L. B. Bishop, Oct. 13, 1893. Upper parts generally dark brownish black, becoming almost pure black on the top of head, nape, tertiaries, tip and part of outer web of primaries, outer web of secondaries, upper tail-coverts and tail. Below sooty brown, becoming somewhat lighter on the neck; most of the chest-feathers tipped with grayish white. Chin and upper part of thorax dirty white tipped with brown; well-defined white spots in both loreal and auricular regions, with many of the feathers tipped with brown; many white feathers mixed with the brownish black of the nape; side of head between loreal and auricular white spots almost as dark as back. Bill black with black elevation of knob at base well indicated, tip of nails of both mandibles pale flesh; tarsi and toes dull orange rufous, nails and palmations black; irides dark brown.

I have arranged in parallel columns, the description of the different parts of the adult female as given by Dr. Coues in his 'Key to North American Birds,' in 1884, and Mr. Ridgway in his 'Manual of North American Birds,' in 1887, with the corresponding parts of my specimen.

It will be noticed that my bird differs chiefly in having a rather darker plumage, white feathers on the nape, and a loral and mental white patch. The white on the chin I believe to be simply an individual peculiarity, but the other differences are possibly characteristic of the fully adult female.

| | COUES. | RIDGWAY. | MY SPECIMEN. |
|------------------|-------------------|--|--|
| Pileum and nape. | Sooty brown. | Dusky. | Almost black. |
| Lores. | Patch of whitish. | Indistinct whitish patch. | Patch of whitish. |
| Auriculars. | Patch of whitish. | No patch of whitish except in young. | Patch of whitish. |
| Nape. | No white. | No white. | Many white feathers. |
| Side of head. | Much whitish. | Grayish brown. | Almost as dark as back. |
| Upper parts. | Sooty brown. * | Dusky, feathers sometimes with paler tips. | Dark brownish black; tertiaries, tip and part of outer web of primaries, outer web of secondaries, upper tail-coverts and tail almost as black as in adult male. |
| Lower parts. | Silvery gray. | Grayish brown, paler on belly. | Sooty brown. |
| Chest. | | Tipped with dull whitish. | Tipped with dull whitish. |
| Chin. | ? | Grayish-brown. | Patch of white tipped with brown. |

Another adult female in my collection (No. 1338) taken at Stony Creek, Conn., Dec. 18, 1894, differs from this bird only in the following respects. Many feathers approaching hair brown and tipped with whitish on back, rump, upper tail-coverts and tail; lower parts a mixture of sooty brown and broccoli brown, the latter predominating, the feathers tipped with whitish especially on the chest. Nuchal white feathering much more extended and distinct; white of chin replaced by hair brown; space between loral and auricular white patches only slightly darker than rest of neck. The brown feathers, particularly on the tail and upper parts, are much worn, while the blackish feathers are fresh and unabraded, leading me to think that the black feathers were replacing the brown.

While in Cambridge in the fall of 1893, Mr. William Brewster kindly showed me his series of this species, among which were several females with the white feathering on the nape quite distinct, and Mr. George H.

Mackay informed me that he had frequently seen this nuchal white patch well developed in the female. I trust that Mr. Gurdon Trumbull will soon conclude his scholarly article on 'Our Scoters,' with a description of this species in all stages of plumage.—LOUIS B. BISHOP, M. D., *New Haven, Conn.*

The Masked Duck (*Nomonyx dominicus*) in the Lower Rio Grande Valley, Texas.—There is a female specimen of the Masked Duck in the United States Department of Agriculture collection, which was killed by William Lloyd five miles north of Brownsville, Texas, on July 22, 1891. In his field notes the collector states that several others were seen at the same place, and a local hunter killed a male in the vicinity. He also feels quite positive that ducks seen in a fresh water pond near Matamoras, Mexico, on Sept. 8, were of the same species. The occurrence of this tropical duck in southern Texas is probably more than casual, and a careful search among the numerous bayous would undoubtedly bring to light more specimens.—A. K. FISHER, *Washington, D. C.*

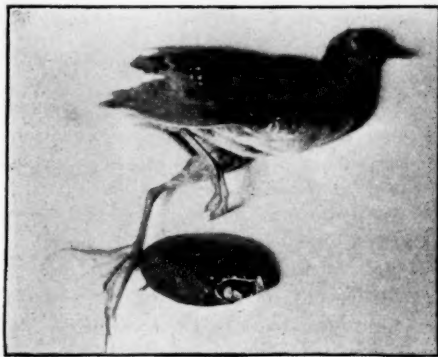
Lincoln Salt Lake and the Occurrence of *Strepsilas interpres*.—Local ornithologists are considerably interested in the occurrence of the Turnstone (*Strepsilas interpres*) in this State. Three were shot at Lincoln Salt Lake on the 25th of May of this year. These were secured by Mr. W. D. Hunter of the Department of Taxidermy, and were placed by him in the State Museum. This is the first authentically reported occurrence of this bird in Nebraska. So far as we can learn it is not reported for any of our neighboring States.

It may be of interest to note that within the last three years the basin of Salt Creek has been artificially dammed, and the water set back so as to form a saline lake about two miles long and one mile wide. Here during the springtime are found great numbers of Gulls, Terns, Ducks, Geese, Waders and Water-birds of all sorts. The Lincoln Gun Club has bought the privileges of this lake, otherwise there would be a continual fusillade kept up against the flocks of birds which hover there. There are but few lakes or marshy places in semi-arid regions to entice Water-birds, and any one could, by indiscriminate shooting, destroy large numbers of them.

Possibly the salt water of this artificial lake provided food and familiar conditions for these birds which tempted them to linger here in their flight.—ERWIN H. BARBOUR, *University of Nebraska, Lincoln, Nebr.*

A Sora caught by a Mussel.—When hunting in the marshes in this vicinity, September 3, 1894, Mr. Joseph D. Clarke noticed a Sora (*Porzana carolina*) hopping along and trying hard to fly. His dog finally captured the bird. It had a "freshwater clam" attached to one toe, being firmly caught by the bivalve. The poor bird in its efforts to release itself had

broken the bone of the toe and nearly severed it from the foot. Mr. Clarke kindly presented me with his rare 'find,' and a photograph, from



which the accompanying cut was made, was taken at once. The mussel was 2.92 inches long and 1.61 wide.—JNO. H. SAGE, *Portland, Conn.*

An Addition to the Birds of Colorado.—Whilst collecting on June 10, 1895, in the eastern foothills of the Wet Mountains, Pueblo Co., Colo., at an altitude of 6,000 feet, I had the good fortune to shoot a Scaled Partridge (*Callipepla squamata*). On mentioning this fact to Prof. W. W. Cooke of Fort Collins, Colo., he informs me that it has not previously been recorded from the State. It is therefore with some pleasure that I am able to add these handsome birds to the list, making the grand total of 348 species recorded from the State.—WILLOUGHBY P. LOWE, *Pueblo, Colo.*

Additional Records of the Passenger Pigeon in Illinois and Indiana.—The occurrence of the Wild Pigeon (*Ectopistes migratorius*) in this section of the country, and in fact throughout the west generally, is becoming rarer every year and such observations and data as come to our notice should be of sufficient interest to record.

I have, in the past few months, made inquiry of a great many sportsmen who are constantly in the field and in widely distributed localities, regarding any observations on the Wild Pigeon, and but few of them have seen a specimen in the past eight or ten years. N. W. Judy & Co. of St. Louis, Mo., dealers in poultry and the largest receivers of game in that section, wrote me as follows: "We have had no Wild Pigeons for two seasons; the last we received were from Siloam Springs, Arkansas. We have lost all track of them and our netters are lying idle."

I have made frequent inquiry among the principal game dealers in Chicago and cannot learn of a single specimen that has been received in our markets in several years. I am indebted to the following gentlemen

for notes and observations regarding this species, which cover a period of eight years. I have various other records of the occurrence of the Pigeon in Illinois and Indiana but do not consider them sufficiently authentic to record, as to the casual observer this species and the Carolina Dove are often confounded.

A fine male Pigeon was killed by my brother, Mr. Chas. E. Deane, April 18, 1877, while shooting Snipe on the meadows near English Lake, Ind. The bird was alone and flew directly over him. I have the specimen now in my collection.

In September, 1888, while Teal shooting on Yellow River, Stark Co., Ind., I saw a Pigeon fly up the river and alight a short distance off. I secured the bird which proved to be a young female.

On Sept. 17, 1887, Mr. John F. Hazen and his daughter Grace, of Cincinnati, Ohio, while boating on the Kankakee River, near English Lake, Ind., observed a small flock of Pigeons feeding in a little oak grove bordering the river. They reported the birds as quite tame and succeeded in shooting eight specimens.

Mr. Frank M. Woodruff, Assistant Curator, Chicago Academy of Sciences, informs me that on Dec. 10, 1890, he received four Passenger Pigeons in the flesh, from Waukegan, Ill., at which locality they were said to have been shot. Three of the birds were males and one was a female. One pair he disposed of, the other two I have recently seen in his collection. In the fall of 1891 Mr. Woodruff also shot a pair at Lake Forest, Ill., which he mounted and placed in the collection of the Cook County Normal School, Englewood, Ill.

In the spring of 1893, Mr. C. B. Brown, of Chicago, Ill., collected a nest of the Wild Pigeon containing two eggs at English Lake, Ind., and secured both parent birds. Mr. Brown describes the nest as being placed on the horizontal branch of a burr oak about ten feet from the trunk and from forty to fifty feet above the ground. He did not preserve the birds but the eggs are still in his collection. The locality where this nest was found was a short distance from where the Hazens found their birds six years before.

Mr. John F. Ferry informs me that three Pigeons were seen near the Desplaines River in Lake Co., Ill., in September, 1893. One of these was shot by Mr. F. C. Farwell.

In an article which appeared in the Chicago 'Tribune,' Nov. 25, 1894, entitled 'Last of his Race,' Mr. E. B. Clark gives his experience in observing a fine male Wild Pigeon in Lincoln Park, Chicago, Ill., in April, 1893. I quote from the article: "He was perched on the limb of a soft maple and was facing the rising sun. I have never seen in any cabinet a more perfect specimen. The tree upon which he was resting was at the southeast corner of the park. There were no trees between him and the lake to break from his breast the fullness of the glory of the rising sun. The Pigeon allowed me to approach within twenty yards of his resting place and I watched him through a powerful glass that permitted

as minute an examination as if he were in my hand. I was more than astonished to find here close to the pavements of a great city the representative of a race which always loved the wild woods and which I thought had passed away from Illinois forever."

Mr. R. W. Stafford of Chicago, Ill., who has shot hundreds of Pigeons in former years within the present city limits of Chicago, informs me that in the latter part of September, 1894, while shooting at Marengo, Ill., he saw a flock of six flying swiftly over and apparently alight in a small grove some distance off.

The above records will show that while in this section of country large flocks of Passenger Pigeons are a thing of the past, yet they are still occasionally observed in small detachments or single birds. — RUTHVEN DEANE, *Chicago, Ill.*

Ospreys at Bristol, R. I. — All along the shores of Mount Hope Bay on the promontory of Bristol, Rhode Island, the Osprey breeds in comparatively large numbers. Although the surrounding country is geologically the same in character yet only few nests are to be found elsewhere. The island of Rhode Island itself, I believe, has a few nests on its shores and near Wickford and along the Providence River a half dozen or so scattered pairs breed.

But there is in Bristol proper each summer, a colony, if so it can be called, consisting of fifteen pairs. Seven of the nests are in dead buttonwood trees (*Platanus occidentalis*) and the remaining eight are built on a kind of structure erected by the farmers for their convenience; namely, a stout pole, averaging twenty-five feet in height, on the top of which an old cart wheel has been placed. In some instances a crossbar forming a perch is nailed just below or on the upper side of the wheel.

After a new pole has been raised, which is generally in the autumn, the coming spring sees it taken by a pair of Hawks. The farmers claim that the birds arrive regularly on the tenth of April, that is at the departure of the Gulls northward. They immediately commence repairing the damage done to their home during the past winter. At this time they can be seen flying about with long streamers of eel-grass trailing from their talons. From yearly additions the nests reach enormous dimensions and between the spokes of the wheels and among the heavy sticks that form the base, English Sparrows (*Passer domesticus*) build. About the first week in May the females lay three eggs (very rarely four) and by the last of the month or in the first week in June the fluffy bodies of the young can be seen above the edge of the nest. By the middle of August they are able to care for themselves.

In one of the pole nests in the summer of 1890 the birds had, either in repairing it or in some other way, brought a bulb or seed of a weed to the nest where, cultivated by the decayed fish, it grew to the height of two or three feet. They paid no attention to it and in the course of a few weeks it withered and died.

The Osprey obtains the greater part of its living in Bristol from the fish seines that run out from the shores in every feasible place, and the Hawks are to be seen at all hours of the day sitting on the poles that support the nets, now and then driving in, or rather dropping down, to obtain some denizen that it contains. In the noonday numbers of Hawks gather over the bay and fields and, mounting high in the air, circle round and round, uttering a combination of piercing, musical cries, which the farmers insist upon calling a song. This song, if so it can be called, begins with three notes in the same key, then two in a higher, and then the completing note in the same key with the first three. If the cry of any Hawk can be spoken of as a song, these six musical notes of the Osprey are certainly as near to it as any.

The Ospreys in Bristol have been so carefully watched,—as the belief among the farmers is that they protect their poultry from other marauding Hawks,—that they have become very tame and only when the eggs are nearly hatched or when the young are in the nest do they pay any heed to a passer by. Their dislike for dogs is apparently stronger than for men, yet I have never seen them strike either.

In the last week of October or the first in November they leave for the south and are replaced by the Gulls. The colonies in New Jersey and on Plum Island are of course much larger but almost every year new pole nests are added to the colony in Bristol and the future may see a much larger community.—REGINALD HEBER HOWE, JR., *Boston, Mass.*

The Great Gray Owl in Oneida County, New York.—A handsome specimen of the Great Gray Owl (*Scotiaptex cinerea*) was shot at White Lake, Oneida County, during a cold snap the first part of last February. It is a rare bird in this locality, its occurrence being recorded about once every ten years.—WILLIAM S. JOHNSON, *Boonville, N. Y.*

January Occurrence of the 'Sapsucker' in Brookline, Mass.—On Feb. 6, 1895, one of the coldest days of the year, with the wind blowing at about forty miles an hour, I sighted a small Woodpecker on the lee side of an apple tree on my father's place in Brookline, Mass. As he seemed a little too large for a Downy Woodpecker, I investigated and found him to be an immature male Sapsucker (*Sphyrapicus varius*). He was clinging to the trunk of the tree and seemed, upon my approach, to be quite sluggish. I even went so far as to attempt to catch him in my hand, when he suddenly proved that he was not sluggish at all, and flew up into the top of the tree to peck at a frozen apple. So I went back to the house and having procured my gun, gathered him in. He proved to be in fine, fat condition and not crippled in any way. I afterwards found that some nephews of mine had seen him several times on apple trees in the vicinity, but not knowing of the rarity of this occurrence in the month of January, they said nothing to me about it.

I had, on several occasions, during the early part of the winter, noted apparently fresh borings on a Larch tree (*Larix europæa*) on our place, and had heretofore been unable to account for them. I know of no other instance of this bird's wintering in Massachusetts except that Mr. William Brewster writes me he killed one in January some years ago.—F. H. KENNARD, *Brookline, Mass.*

Breeding of Traill's Flycatcher in Eastern Massachusetts.—On June 18, 1895, I took a set of four eggs of Traill's Flycatcher in Lynnfield, a small town twelve miles north of Boston. On various occasions earlier in the month I had seen Traill's Flycatchers in a bushy meadow and the actions of individual birds led me to believe that one and perhaps two pairs of this species were intending to breed.

On June 16 I searched for a nest and soon found one with three eggs. The following morning there were four eggs. On neither occasion was a bird seen at the nest but on the morning of the 17th one of the Traill's Flycatchers flew about in the neighboring bushes and complained. On the afternoon of June 18 I went to the nest in company with Messrs. E. H. Forbush and C. E. Bailey. As on previous occasions, the bird was not on the nest. Mr. Bailey ensconced himself in the bushes and after an hour's wait shot one of the Flycatchers. The bird came near the nest and drove away a Maryland Yellow-throat, and then after an interval appeared again and lit on the nest and looked at the eggs. A moment later Mr. Bailey shot her. This bird is now in the collection of Mr. Wm. Brewster.

The nest is a typical Traill's, being constructed of fine grasses and neatly lined. The body of the nest is a quite compact and well-made structure but there is a lot of loose odds and ends in the shape of long, grasses stringing down from the outside of the nest.

The eggs, four in number, and very slightly incubated, are white with reddish spots (nearly flesh-colored), these being principally at the larger end and forming a slight ring. The nest was three and a half feet from the ground and in a small wild rose-bush. The locality is a bushy meadow, the growth being principally alder, young maple, white cedar and wild rose-bushes.—J. A. FARLEY, *Newton, Mass.*

The Western Meadowlark at Racine, Wisc., etc.—In the April number of 'The Auk' (Vol. XII, p. 192) I find a communication from an observer in northern Michigan, if I remember rightly, recording the appearance there of the Western Meadowlark—*Sturnella magna neglecta* (Aud.).

It was with much interest that I heard this bird was at Racine, Wisc., where its note sounded strange enough, although I had long been familiar with it in California. Dr. Hoy, so well known in the Northwest, some years ago reported "this variety as occurring occasionally, near Racine."

In this connection I should like to make mention of one of our eastern Meadowlarks (*Sturnella magna*) which I saw last spring in Connecticut,

soaring in the air and singing like an English Skylark. I failed to identify him until he dropped down a little distance away and became the unmistakable, every-day performer of our fields.

In relating the circumstance to a gentleman whose knowledge of our home birds is only exceeded by his modesty, he told me that he once heard a Robin (*Merula migratoria*) imitating perfectly the cry of the Whip-poor-will. I could reconcile the statement with personal experience when only last month I listened to a Robin whose pipe had evidently been attuned to the wild cry of the Nightjar or perhaps to the strains of more than one bird of song, for it was very unlike his own clear, excellent music. The ways of birds are sometimes quite as unusual as their voices. It was but yesterday that I saw a Crow Blackbird hovering over a pond after the manner of a Kingfisher. He did everything but dive into the water and plainly enough was in search of something to eat.—
G. S. MEAD, *Hingham, Mass.*

Strange Habits of the Rusty and Crow Blackbirds.—Since the unparalleled cold of the past winter throughout the Southern States, we have heard and read of many instances of the great destruction among our smaller birds; and the unusual scarcity of a number of our common spring migrants, both in the east and west, only demonstrates too clearly the larger numbers which must have perished in their winter home. The most remarkable instance of which I have learned, evidently brought about by the deep snows cutting off the food supply of some species, is the preying of the Rusty and Crow Blackbirds on other species for food.

I am very much indebted to my friend Mr. Jesse N. Cummings of Anahuac, Texas, for the following interesting letter on this subject. Anahuac is in Chambers Co., at the head of Trinity Bay, and north of Galveston. "March 24, 1895. In the first place snow exceeding the depth of two or three inches was never known before in this section of the country, until this storm which commenced the 14th of February and lasted for about thirty hours, covering the ground to a depth of twenty inches on a level and remaining at about that depth for three or four days before it commenced to thaw, and then it was three or four days more before the snow had entirely disappeared. I have on my place an artesian well which has a temperature of about 70° and a flow of 60,000 gallons per twenty-four hours. This kept a large piece of ground on the bay shore free from snow and was the only place in the country where a Jack Snipe (*Gallinago delicata*) could warm his toes or get anything to eat. I did not notice the first Snipe that came in, as it was the second day after the snow-storm that my attention was directed to them, and when I went down to see them I should say that there were at least two hundred birds on a space not over one hundred feet square. It did not take me long to get my gun and kill about forty in a short space of time, as you could hardly drive them away,

and as fast as they were flushed would shortly return. I could have shot them every day for a week had I cared to. At this small open piece of ground, the Rusty and Crow Blackbirds had collected, but I did not see them kill many Snipe the first day or two, but the third and fourth days they just went for them. I should say that I saw them actually kill ten or twelve Snipe on the ground where the snow had melted, but there were thirty or forty dead ones that I saw in other places. The Rusty Blackbirds were the principle aggressors, and it was astonishing to see how quickly they could attack and lay out a Snipe or Robin. Both species were killed while on the ground and the Blackbirds would only eat the head, or as near as I could see, the brain, while the body was left untouched.

"Up around my house they attacked the Robins and I have no idea how many they did kill, but you could see them lying around everywhere on the snow, and it was the same way all up and down the bay shore. I presume they killed other species of birds but I did not notice any. I cannot account for this sudden change in the Blackbirds' habits except from lack of any other kind of food and they made the best of what was at hand."

If any of the other readers of 'The Auk' have heard of any rapacious traits in the character of our Blackbirds, I hope they will give us the benefit of their experience.—RUTHVEN DEANE, *Chicago, Ill.*

Notes on the Breeding of the American Crossbill in Hamilton County, New York.—I have spent much of my time, during the last three summers, at Camp Killoquah, Forked Lake, Hamilton Co., New York, and have been much interested in watching the habits of some Crossbills that spend most of their time about the camp.

There are several camps on this preserve, which belong to the Hamilton Park Club, but Killoquah seems to be the only one that the Crossbills (*Loxia curvirostra minor*) consider thoroughly congenial, and here they replace most acceptably their distant connections, the English Sparrows.

In both 1892 and 1893 I had arrived at Camp too late even to pretend to hunt for their nests, but last year (1894) as soon as I had arrived there, in the last week in July, I immediately inquired for my friends, and was much disgusted to learn that they had built a nest, in under the roof of the tank that supplies the Camp with water, and that on June 5 this nest had been torn down, before any eggs had been laid, as it was clogging the automatic dial, which registers the amount of water in the tank, and as the birds were fouling the water.

Mr. W. Harrison Eisenbrey, the owner of the Camp, as well as the guides who knew the birds well, were present when the nest was torn down, and showed me exactly where it had been placed inside the roof, and on a shelf just above the indicator. The nest, too, was shown me, in a very dilapidated condition; but it was sufficiently well preserved to tell just how it must have looked.

It had been built with a few twigs as a foundation, and a thick layer of bark, stripped from the cedars and hemlocks which grow about there in profusion, and the whole structure, which was very bulky, was topped off and thoroughly lined with plant down. It looked not unlike a large edition of a Phæbe's or Wood Pewee's nest, and was one of the best built and most comfortable nests I ever saw.

The birds, of which there were several pairs, were still about Camp, but no other nests could be found. They were very tame, and extremely fond of salt, and could often be found paddling about in the drippings under the cold storage house, or perched on a yellow birch beside it. Often they might be seen walking sedately about on the banks around the Camp, and the males with their beautiful, clear and almost metallic notes spent much of their time singing from the tops of some of the neighboring pines, a song that once heard can never be forgotten.

Mr. Geo. W. Smith, one of the guides at Camp, informs me that during the latter part of May, 1890, as he and another guide were going through some low spruce brush near Brandreth Lake, Hamilton County, they found a Crossbill's nest placed at the height of about five feet against the stem of a low spruce tree. The nest contained four or five young, which immediately fluttered off in different directions upon his putting his hand into it. This nest he tells me was similar in construction to the one above cited, except that it was not quite so bulky.—F. H. KENNARD, Brookline, Mass.

Peculiar Nest of a Chipping Sparrow.—Regarding the use of unusual materials in the construction of nests, the following note may be of interest. A nest of *Spizella socialis* was found in Boylston, Mass., June 9, 1890, built entirely of hog's bristles. It was very white and neatly made but being placed in the underpinning of a cider mill in an exposed place, where it was quickly discovered by children, it was abandoned before any eggs were laid.—HELEN A. BALL, Worcester, Mass.

Harris's Sparrow in British Columbia.—Mr. Brewster states in the last number of 'The Auk' that the second occurrence of Harris's Sparrow (*Zonotrichia harrisi*) in British Columbia is reported by Mr. Brooks from Chilliwack, B. C. The second occurrence of Harris's Sparrow is reported by me in the January number of 'The Auk' taken by Mr. W. B. Anderson at Comox, B. C., on the 20th of November, 1894. (See Auk, January, p. 76, 1895.) On the first of December I received two more specimens of this bird from the same careful observer who reported having seen others. It is very likely Harris's Sparrow is going to make a home in British Columbia. I am certain Mr. Brewster had not seen my notice when he made the statement but this correction is due Mr. Anderson.—J. FANNIN, Victoria, B. C.

The Lark Bunting in South Carolina.—One afternoon in the early part of April I noticed a very plump looking Sparrow while I was walk-

ing down a road which had a very thick hedge on one side. This bird was in the top of a bush when I noticed it and it bore a strong resemblance to the Grass Finch (*Poocates gramineus*), only it was larger. I fired at it with a small collecting pistol and slightly wounded it. Day after day I visited the spot hoping to see the bird again. Eight days afterwards, April 19, early one morning I saw the same bird within a few yards of the place where I had wounded it. It was perched on a low bush and upon seeing me flew down into a field where a lot of White-throated Sparrows were feeding. This time I secured it. Upon examination I was completely puzzled for it was a new bird to me. I had in mind the Lark Bunting (*Calamospiza melanocorys*), and specimens of this bird, kindly sent me by Messrs. Brewster and Chapman, confirmed my suspicions. The bird is an adult female and evidently wintered, as it was moulting about the throat. It seems strange that this bird was taken within 200 yards of the place where I shot the Missouri Skylark, and Little Brown Crane, recorded in recent numbers of 'The Auk.' — ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

Summer Redbird at Saybrook, Conn. — I have recently added another unexpected acquisition to my list of things new in a fine male specimen of the Summer Redbird (*Piranga rubra*) which I secured here in Old Saybrook on the 27th of April last (1895). It seemed to be perfectly contented, as if ignorant that it had wandered off, and whistled as cheerily in the cold rain storm then prevailing as if it was still under sunny skies. This is the first of its species that I have ever seen here. — J. N. CLARK, *Saybrook, Conn.*

Prothonotary Warbler near New York City. — In the early morning of June 2 last, near Yonkers, New York, I had the great pleasure of seeing a Prothonotary Warbler (*Protonotaria citrea*) and listening to its song. The exact locality was rather more than a mile east of the Hudson River, and half that distance beyond Van Cortlandt Park at the northern limit of New York City. In the woods at this point a shallow pond, or pool, spreads itself among a scattered grouping of trees and bushes. This was clearly the attraction which kept the bird about the spot, enabling me to watch it at leisure. It was not at all shy, and much of the time was so near to me that, though my field-glass was not dispensed with, there was no need of it for purpose of identification. The exquisite bird kept constantly over the water, frequently coming into conspicuous view on open horizontal branches and sometimes clinging momentarily against a tree-trunk. Its usual motions were leisurely, the movements of the head sometimes quite Vireonine.

The song, which was repeated at short intervals, though not at all remarkable, was very distinctive, and not fairly to be compared with any other known to me. Listening to it, it seemed as if an unpractised ear might perhaps have associated it with the Golden-crowned Thrush, not-

withstanding its weaker emphasis, with the five to eight notes pitched all on the same key. The call-note was not heard.

This would appear to be the first known occurrence of this bird in the State outside of Long Island, where the capture of two has been recorded by Mr. Dutcher (Auk, V, 1888, p. 182; X, 1893, p. 236). —EUGENE P. BICKNELL, *New York City*.

Occurrence of *Helinaia swainsoni* in the Dismal Swamp, Virginia.—

During the early part of June, 1895, the writer made a short trip to the Dismal Swamp, and, as far as practicable, explored the region bordering Lake Drummond. Various forms of animal and plant life occurring in the locality demonstrate conclusively that the northern extension of the Austroriparian region includes this swamp area. The cane (*Arundinaria*) grows commonly through the swamp as well as along the lake shore, and often forms extensive, almost impenetrable masses. On the morning of June 2, near the edge of one of these canebrakes, the writer had the pleasure of seeing a Swainson's Warbler which, although rather wary, alighted within a few feet of him, but immediately flew off and was not seen again. On the following day an adult male was secured near an old boggy road, a couple of miles from where the first one was seen, and on June 5, still another was observed. The last, like the first, alighted near by, and, after looking at the collector for a few moments, disappeared in the thicket. From the number seen it is probable that the species is a common summer resident. —A. K. FISHER, *Department of Agriculture, Washington, D. C.*

Helminthophila leucobronchialis in Maryland.—An adult male specimen of this Warbler was shot at Beltsville, Md., not far from Washington, D. C., on the first of May, this year, by Mr. A. H. Thayer, who brought it to the National Museum for identification. The bird was secured in exchange for the National Museum collection (Museum register No. 150,120). It is a very typical one, absolutely without any trace of yellow on the breast or abdomen, but with rather more black on the post-ocular streak than is shown in the plate accompanying the description of the type, and considerably more than in the specimen shot by Mr. Wm. Palmer near Washington, May 8, 1885 (No. 105,684). Some of the feathers of the cheeks are black, a feature not shown in the type, nor in the above-mentioned example collected by Mr. Palmer. The back is clear ashy gray, with the faintest possible tinge of yellow in the interscapular region. The crown and wing bands are bright yellow, as in the type. —CHAS. W. RICHMOND, *Washington, D. C.*

Nesting of *Helminthophila leucobronchialis* in Connecticut.—My collector, Mr. Samuel Robinson, found here June 24, 1894, a nest of this puzzling Warbler containing four eggs, but did not disturb it. The next day I visited the spot and started the female from the nest a number of

times. Her mate was *H. chrysoptera* in normal plumage. He flew to the female occasionally and was quite tame. At this time, when swinging in an apple-tree near by, the drawling note peculiar to this species was so faint as to require close attention to hear it. My first idea was to leave the eggs and have them hatch, then watch the young and so try to settle the perplexing question about these birds, but the nest was so close to a cattle-path in the swamp that it was liable to be destroyed by the animals when passing to and fro after water, they having already nearly stepped in it. I finally waited until the 23d of the month and took the nest and eggs and secured both birds. After the female was shot, and the male was unable to find her, his song changed and was as loud and sharp as in early spring. The nest was on the ground among thick alder bushes on the edge of a swampy thicket. It was composed externally of dry leaves and a few pieces of coarse grass, and lined with delicate strips of grape-vine bark. The eggs are white, finely and sparsely speckled with reddish brown, the dots being more conspicuous about the larger end, forming in one egg a noticeable ring. This female *leucobronchialis* is nearly as bright in color as the males. The chin, breast and abdomen are marked with yellow, the breast strongly so. Wing-bars yellowish white. I have now found Brewster's Warbler here for nine successive years, the specimen referred to above being the only female. The large series in my collection shows many variations. — JNO. H. SAGE, Portland, Conn.

Nesting of *Mimus polyglottos* in Eastern Massachusetts.—On June 3, 1895, while walking along a narrow country road in Groton, Massachusetts, my attention was suddenly attracted by the strange sight of a Mockingbird flying across an adjoining field. It alighted on a fence post near by, and, as I turned back to make sure that I had seen aright, my surprise was increased by the appearance of a second one. The two birds flew off together with such an evident air of being mates that I immediately began to look for a nest. The road was bordered on each side by a broad stretch of grassy fields, divided by rail fences: an eighth of a mile away it crossed a much travelled highway, strung along which a dozen houses could be seen; while at about the same distance in the opposite direction was the beginning of a large tract of deciduous woods. Besides these woods, there was hardly a tree anywhere near, save a few small apple-trees by one of the houses and one or two more—stunted, chance-sown seedlings—growing by the roadside. To one of the latter, a few steps away, I directed my search. In a moment I discovered a clumsily built nest a dozen feet from the ground, amid the thick foliage of a branch that overhung the road. I climbed the tree and, though I found the nest empty, I was rewarded by a scolding visit from the birds. When I came again on June 13 they gave me a still more unfriendly greeting though they were so wary that I obtained only the male to accompany the nest and four half-incubated eggs which I secured.

This locality, which is in the northern part of Middlesex County, hardly six miles south of the New Hampshire boundary, is the most northern point in New England where the Mockingbird has yet been known to breed, and the only one in Massachusetts, east of Springfield, where its nest actually has been taken. The only other recorded evidence I can find of the breeding of the species in eastern Massachusetts is based on two families of well-grown young, found, one at Arlington (Auk, I, 192), the other at Marshfield (O. & O. XIV, 144). In each of these cases the birds were not discovered until August 15, although it seems probable that they had been bred in the neighborhood.—CHARLES F. BATCHELDER, *Cambridge, Mass.*

More Wyoming Mockingbirds.—In 'The Auk' for July 1894 (XI, p. 258) will be found a short account of the capture of three Mockingbirds (*Mimus polyglottos*) along Crow Creek about two miles east of Cheyenne. The first capture was made on May 10, the second on the 11th and the third on the 23d. I did not anticipate at the time that I would ever have a similar experience here, for I had collected birds at this point during the previous twelve years and had never found a Mocker before. On May 19, 1895, I found two Mockingbirds along Crow Creek six miles west of Cheyenne. Not having a gun along I had to content myself with watching the birds and in listening to the song of the one with the larger wing patches. These two birds were comparatively tame for I approached to within thirty yards, at which distance they scarcely noticed me.

To-day, May 26, I visited the locality two miles east of town where I made the capture in 1894. I was again fortunate for I flushed a female Mockingbird (*Mimus polyglottos*) from the same cottonwood copse in which I killed No. 3 on May 23, last year. After a half hour's stern chase I bagged my bird not a hundred yards from the point where the other bird fell.

I hardly know what conclusion to draw from the presence of these birds in Wyoming. Dr. Mortimer Jesurun wrote me that he captured one specimen at Douglas, one hundred and fifty miles north of Cheyenne, last year. It is more than probable that considerable numbers of Mockingbirds, both during the present spring and in 1894, visited Wyoming and probably raised broods here.—FRANK BOND, *Cheyenne, Wyo.*

Absence of the Bluebird at Meadville, Pa.—For the first time in my recollection *Sialia sialis* is noticeable for its absence, in the vicinity of Meadville, Crawford Co., Pa., for this time of the year. In referring to my note book, I find that I have observed them in this locality, every month in the year, with the exception of the month of December, in more or less numbers, they being very common during the spring, summer, and fall months. But their soft warbling notes are not to be heard this spring among those of many other happy songsters. The first that I observed

them this spring was on April 6, when I saw four, and again on April 16, when I saw two. Since then I have visited some of their most favorite haunts a number of times but have failed to note a single one. They were very common last year, lingering with us until late in November. I am inclined to believe that the exceptionally cold winter has been very hard on them, in depriving them of their food supply.

Early on the morning of March 24, 1895, a large 'bird wave,' composed of Geese, Swans, and Ducks got lost, or became bewildered by the electric lights (a dense fog prevailing in this valley at the time) and flew about the city for a couple of hours before they could get their correct bearings. There must have been thousands of them judging from the noise they made.

Of late years this is getting to be a common occurrence during their spring migrations. I have in my collection a fine specimen of the Long-tailed Duck, which I found dead on the door-step one morning, after one of these flights, it probably having flown against the house.—H. C. KIRKPATRICK, *Meadville, Pa.*

Nantucket Notes.—Nantucket, Mass., August 26, 1894. I shot to-day a Wilson's Snipe (*Gallinago delicata*) which was feeding among a flock of Peeps on the shore of Hummock Pond. A short time after I shot a Stilt Sandpiper (*Micropalama himantopus*) from this same flock of Peeps. I saw in addition another specimen which had been taken in the same locality two days before.

November 6, 1894, I shot two female Mallards (*Anas boschas*); they were in company with some Black Ducks (*Anas obscura*), but seemed to feel out of place, keeping a little apart.

November 1. Twenty-five Broadbills (*Aythya marila nearctica*) seen at the Long Pond to-day. November 8, I saw a flock of *Somateria dresseri*, seven females, later three males, in Nantucket Sound. In a letter received from Mr. Vinal N. Edwards, dated Woods Hole, Mass., Jan. 16, 1895, he informs me, that from the 1st to the 5th of November, 1894, the wind had been strong S.W. to W.; the week previous it was N.E. to S.E., cloudy and rainy. On Nov. 5, 1894, the first American Eiders (*Somateria dresseri*) of the season were noted by him, — a flock of thirty-seven. By the 27th about one thousand had collected, but the gunners drove them away, and the weather being so moderate they remained in the Sound to feed. On Jan. 15, 1895, there were about one thousand in the Hole but they only remained about two hours.

Nantucket, April 10, 1895. Mr. Charles E. Snow informs me that he saw to-day on the Ram Pasture a Bartramian Sandpiper (*Bartramia longicauda*) and drove within twenty yards of the bird. This is the earliest spring record I have ever heard of in this vicinity.—GEORGE H. MACKAY, *Nantucket, Mass.*

Notes on Some Connecticut Birds.—*Uria lomvia*.—A few of these northern birds entered the Connecticut River in December, 1894. Two

were killed at Essex on the 11th of that month and sent to me. At Portland, three were seen Dec. 14, and five on the 22d—specimens being taken at each date which are in my collection. I have never seen Brünnich's Murre in this immediate vicinity before.

Porzana noveboracensis.—Three specimens of this rarely seen Rail were shot here during September and October, 1894.

Ceophlæus pileatus.—Mr. Gurdon Trumbull tells me that a Pileated Woodpecker was seen at Granby, Conn., during the early part of the winter of 1894-95. It was followed a mile or more and fully identified but was not captured. This bird was in practically the same locality where one was killed Nov. 1, 1890 (Auk, X, 1893, 371).

Vireo philadelphicus.—A female was taken here September 17, 1894, by Mr. Samuel Robinson and is in my cabinet. It was found among some large willows on an island in the Connecticut River, and shot within a few feet of the spot where he killed a specimen September 21, 1893 (Auk, XI, 1894, 181).—JNO. H. SAGE, *Portland, Conn.*

Bird Notes from St. Albans, Vermont.—The Brünnich's Murre (*Uria lomvia*), so far as my knowledge goes was first found here in December, 1892, at which time specimens were easily procured and added to the cabinet. They came in large numbers to St. Albans Bay, an arm of Lake Champlain, some three miles from town, during the winter of 1892, returning in the winter of 1893, when a specimen was shot on the 13th of December. In January, 1894, another specimen was shot in Richford, an inland town bordering on the Canada line. In the past December they came by thousands, the lake seeming, in places, fairly swarming with them. One sportsman shot 200, and each gunner brought more or less of them to town, many of which were taken alive. Those who have shot them say they are so tame one can almost catch them in their hands. They are in poor condition, apparently starving, and very many have been frozen into the ice and chopped out by fishermen.

The Florida Gallinule is also supposed to be of rare occurrence in Vermont, but for the past twenty years it has been common about Lake Champlain, breeding here also, as it is a regular autumn experience to come upon them with their young.

The Great-crested Flycatcher (*Myiarchus crinitus*) is also supposed to be of rare occurrence, the only record being from C. S. Paine of Randolph. I can echo Dr. Merriam's words, "that now it is certainly a really common bird," not only in Connecticut but in northern Vermont as well. Not only has nearly every piece of woods its 'Great-crest,' but I see it beside the roads, occasionally, in my drives.

Wilson's Stormy Petrel (*Oceanites oceanicus*) has also been taken here, and, what is still more surprising, an elegant Meadowlark was given me the 6th of January last. It had been about the doors of a neighbor's house hunting for food and resting at night in willow trees that overhung the piazza; its fearless confidence in humanity meeting the

usual fate. Two weeks later a Saw-whet Owl was sent to me, a bird that asked only the hospitality of a night's lodging when the weather was inclement, and was dispatched with true American promptness. I considered the Meadowlark's presence at that time of year unprecedented in this locality, when the mercury often reminded us that we are near neighbors to the North Pole. Was it ever known to winter so far north before?

Is the Solitary Sandpiper (*Totanus solitarius*) known to swim under water? A friend of mine wounded one last summer when it fell from an overhanging rock to a little corner on the lake beach. He jumped down after it thinking it could not possibly get away, when it quickly went under water, a little ribbon of bubbles marking its way far out into the lake. In surprise he waited its reappearance, when it turned and came his way again, landing not far away when (poor bird) it was easily captured. The Spotted Sandpiper was sure to resort to the same tactics when pursued by a Hawk. I am delighted to say it made good its escape, coming up at a distance and putting its pursuer quite off the track. — NELLY HART WOODWORTH, *St. Albans, Vt.*

Some Rare Birds of Recent Occurrence near Buffalo, N.Y.— *Uria lomvia*. BRÜNNICH'S MURRE.—Four stragglers of this species were seen here last fall; two of which were captured. One was shot near Irving on or about December 1, 1894, by 'Jake' Koch, a sportsman of local fame, who had it mounted and placed in the rooms of the Acacia Club in this city. The second was shot in Buffalo harbor by a gunner named Snyder who says that it is one of three that were flying past him at the time. This latter is now in my collection. Both were young birds which probably strayed from the coast via the St. Lawrence River and Lake Ontario.

McIlwraith recorded in his 'Birds of Ontario' (p. 38) the capture of nearly fifty of these birds in various parts of the Province late in the fall of 1893, and it would be interesting to know if there were any considerable numbers of stragglers last fall. A short time ago Mr. J. L. Davidson of Lockport informed me that a correspondent of his shot four strange looking Ducks in Jefferson County which possibly were of this species. And recently 'Forest and Stream' was asked to identify a bird shot in the interior of New York State that from the description was evidently a Murre.

Larus marinus. GREAT BLACK-BACKED GULL.—An uncommon winter resident here though probably of regular occurrence. I have a specimen in immature plumage shot on Lake Erie in January, 1894. This winter I saw four adults on February 19 (1895), two on February 20, and one on the 22d. I tried hard to shoot one but was not successful as they were very shy. The Gulls — of which *L. argentatus smithsonianus* is the most common — usually rest quietly on the ice in the morning but appear in numbers in the afternoons to feed upon 'lizards' (*Necturus maculatus*) and bait (minnows) cast away by the fishermen.

Larus glaucus. GLAUCOUS GULL.—One shot on Niagara River, January 29, 1895, which I saw at a taxidermist's shop two days later.

Sterna tschegrava. CASPIAN TERN.—A young male which came into my possession Feb. 20, 1895, was shot on Lake Erie near Stony Point (just outside the city limits) late in the fall of 1893 by a gunner named Joseph Kotz.

Phalacrocorax dilophus. DOUBLE-CRESTED CORMORANT.—Although this bird has been taken here before, I met with it last fall for the first time in eight years' experience. Five were shot here, three of which I examined. Two were taken October 11, 1894, and the last was shot from the shore at Stony Point, November 3, 1894.

Pelecanus erythrorhynchus. AMERICAN WHITE PELICAN.—One of these large birds, now only casual in the East, was shot on Niagara River near the International Bridge, October 5, 1894, by 'Jake' Koch. It was seen by fishermen and others at the foot of Michigan Street to come in from Lake Erie and fly diagonally over the city toward the river, where it was shot later in the day.

Crymophilus fulcarius. RED PHALAROPE.—I shot a female which I found wading in a wet pasture in South Buffalo, September 26, 1894. I thought at the time it was the first for Erie County but have since obtained another from Mr. Herman Grieb, taxidermist, which is one of two which he shot on separate occasions near Rattlesnake Island, Niagara River, in October, 1892. Have also seen another, taken here, in the collection of Mr. Edw. Reinecke.

Macrorhamphus scolopaceus. LONG-BILLED DOWITCHER.—I am indebted to Mr. Grieb for a specimen shot from a flock of *M. griseus* on Strawberry Island, Niagara River, in October, 1892.

Micropalama himantopus. STILT SANDPIPER.—Two of these Sandpipers were shot by me on September 16, 1893. They were feeding in company with some Yellow-legs (*Totanus flavipes*) in the bottom of the artificial lake in South Park, which was then being excavated.

Accipiter atricapillus. AMERICAN GOSHAWK.—On the 11th of March this year (1895) I was waiting with my camera to get a snap at a Great Horned Owl as she returned to her nest. When finally the Owl came it was followed by a Hawk which circled several times over my head just above the tree tops and which I am certain was a Goshawk. My companion had the gun in another part of the woods so I could not shoot it except with the camera. I succeeded, however, in getting it in the same picture with the Owl.

Melanerpes carolinus. RED-BELLIED WOODPECKER.—I saw one at the taxidermist's that was shot at North Collins, Erie Co., in October, 1894.

Sturnella magna. MEADOWLARK.—A beautiful albino was shot at Crittenden, this county, on October 4, 1894, and was mounted by Mr. Grieb, taxidermist. The usual brown of the upper parts was of a pale buff color with the pattern of the feather markings indistinctly discernable, while the yellow on the breast was as pure as in an ordinary Lark.

Ammodramus savannarum passerinus. GRASSHOPPER SPARROW.—

This little Sparrow is a rare summer resident in Western New York. I have been on the lookout for it for six or seven years but without finding it until last spring. On May 2, 1894, I was riding my wheel just outside the city when my ear caught the peculiar note of this species. I stopped to investigate and soon flushed a Grasshopper Sparrow. I returned to the spot next day and secured a specimen and saw five or six others. Later in the season, on and about the first of June, I searched on several occasions for the nest of two pairs which frequented the same field, north of the city. And still later in June I saw one of these Sparrows near Abbott's Corners, and another near North Boston.

Thryothorus ludovicianus. CAROLINA WREN.—On the 5th of November, 1894, I was passing through a patch of fallen timber in the woods near Stony Point and stopped to watch some Chickadees. When I started on I was startled by a loud chattering such as I had never heard before. It was fully ten minutes before I caught sight of the author of it, and had the pleasure of adding a Carolina Wren to my collection. I have not seen any record of its capture in Western New York previous to this. It was taken just after a severe gale from the southwest.—JAMES SAVAGE, *Buffalo, N. Y.*

Two Unique Nesting-sites in and about Camp Buildings in Hamilton County, New York.—On July 29, 1894, while visiting at Camp Killoquah Forked Lake, Hamilton County, New York, I saw some very suspicious looking straws sticking out from a niche between the logs and behind the framing of a window in the side of the main building of the camp. Upon investigation they proved to be a part of a Junco's nest, which contained four fresh eggs. In the crevice between the two logs just above, there was also an old nest, which had evidently been used for some previous brood. These nests were rather remarkable on account of their close proximity to the door of the camp, through which every one there was wont to go, and beside which, in the course of a day, a good deal of work was done. I learned from the guides that this pair of Juncos had been around there all the spring, and they were still often to be seen picking up crumbs about the kitchen and dining room. The nest was made of cedar bark and grasses, and lined with long deep hairs, which the birds had picked up in the vicinity.

On August 3, 1894, I found a Chimney Swift's nest placed just under the ridge pole of an old log barn and against the side of one of the logs of which it was constructed. Such a position was new to me as I had always thought they built either in chimneys or in hollow trees, and it was additionally interesting from the fact that it was within a foot of an enormous hornet's nest. The five young birds which were nearly fledged were clinging to the bark of the logs in the immediate vicinity and seemed to get on much better with the hornets than I did.—F. H. KENNARD, *Brookline, Mass.*

NOTES AND NEWS.

MR. EDWARD HARGITT, a Corresponding Member of the American Ornithologists' Union, died at his home in Edinburgh, March 19, 1895, in the sixtieth year of his age. Mr. Hargitt was an artist of eminent standing, as well as an ornithologist, having been made in 1887 a member of the Royal Institute. His interest in birds was general, and he had at one time acquired a large collection of the birds of Northern Europe and Asia, but lack of accommodation for its storage led him later to disperse it, the greater part going to the British Museum. He selected, however, the Woodpeckers as his special field of study, and will be long known as an authority on this group through his admirable monograph forming Vol. XVIII of the 'Catalogue of the Birds in the British Museum.' From 'The Ibis' we learn that he "worked continuously at a series of paintings to form a monographical gallery of the Picidæ, illustrating every type in British and foreign museums, and giving colored portraits of every variation in plumage." He was never strong, we learn from the same authority, "having for years been an uncomplaining martyr to asthma." He is spoken of as "a very quiet, unobtrusive man, generous almost to a fault," and "chivalrous in the highest sense of word."

MR. JOHN S. CAIRNS, an Associate Member of the American Ornithologists' Union, was killed June 10, 1895, by the accidental discharge of his gun while on a collecting trip with a party of friends to Black Mountain, North Carolina. Mr. Cairns was a prominent and popular citizen of Weaverville, N. C., where he was buried with Masonic honors. Although Mr. Cairns had published little, his untimely and sad death is a distinct loss to ornithology, his researches in the vicinity of Asheville, North Carolina, having given him an intimate knowledge of the birds of that region. Fortunately some of his notes, generously sent to ornithologists with whom he was in correspondence, may yet see the light. A letter to the editors of 'The Auk' from a prominent ornithologist speaks of him as a thoroughly trustworthy observer, and "one of the most generous men that ever lived." He was interested in other departments of natural history, especially in mammals. He was a son of Captain John Cairns of Weaverville.

THE HON. FRANKLIN FAIRBANKS, of St. Johnsbury, Vermont, an Associate Member of the American Ornithologists' Union, died in that city on April 24, 1895, at the age of 67 years. He was the youngest of four sons of the late Governor Erastus Fairbanks of Vermont. At the time of his death he was President of the well-known Fairbanks Scales Com-

pany, and was prominent in railroad, banking and other business enterprises, and conspicuously active in educational and philanthropic works. His intelligent interest in natural history was especially manifested through his gift, in 1891, to his native city of the Fairbanks Museum of Natural History. He had been an Associate Member of the A. O. U. since 1885, but his relation to ornithology was mainly that of a promoter of the science.

MR. GEORGE H. RAGSDALE, of Gainesville, Cooke Co., Texas, an Associate Member of the American Ornithologists' Union, died at his home in Gainesville, March 25, 1895. Mr. Ragsdale has been a frequent contributor for the last ten years to 'The Auk' and other natural history journals of interesting field notes respecting the ornithology of Cooke County, Texas, with which he was especially familiar, and did much to popularize natural history through his contributions to the local newspapers, with one of which, 'The Hesperian,' he was editorially associated.

THE REV. A. H. GESNER, of Sing Sing, N. Y., an Associate Member of the American Ornithologists' Union, died at his home in that city, April 30, 1895. Mr. Gesner was a well-known clergyman of the Episcopal Church, and for many years had taken an intelligent interest in ornithology, making frequent excursions afield to study the ways of his bird friends, but he has left few published records of his observations.

AS THESE pages go to press the sad announcement reaches us of the death of Professor Thomas H. Huxley, an Honorary Member of the American Ornithologists' Union, who died on the afternoon of June 29, at the age of 70 years. A notice of his life and works, and particularly his important contributions to ornithology, is necessarily deferred to a later issue of this journal.

WE HAVE just received from the publisher, David Douglas (10 Castle Street, Edinburgh), a copy of the long hoped for English translation of Herr Gätke's 'Die Vogelwarte Helgoland,' published in 1891 (see Auk, VIII, 1891, p. 299). The translation bears the title 'Heligoland as an Ornithological Observatory: The Result of Fifty Years' Experience,' and is made by Mr. Rudolph Rosenstock. The preface to the English edition is by Mr. John A. Harvie-Brown, who is, as he expresses it, "in a measure, godfather to this edition of Mr. Gätke's Observations on the avifauna of Heligoland." A further notice of this important work will be given in a later number of this journal.

THE NUTTALL ORNITHOLOGICAL CLUB of Cambridge, Mass., is about to publish as No. 2 of its 'Memoirs,' a monograph of the Ipswich Sparrow by Jonathan Dwight, Jr., M.D. The memoir will treat the subject exhaustively, being based on the existing literature of the subject, supplemented by the author's extensive field experience of the bird's habits as observed on our own coasts, and by his researches at Sable Island in 1894, where he had an opportunity of studying its breeding habits and obtained its nests, eggs, and young in first plumage. The paper also includes a pretty full account of Sable Island, its history, fauna, flora, etc., and a very complete bibliography of the Ipswich Sparrow. It will be illustrated with a colored plate, showing the adult breeding male and the young in first plumage.

A PROSPECTUS from the publishers, Charles H. Sergel Company (358 Dearborn St., Chicago), announces the early publication of 'The Proceedings of the World's Congress of Ornithology,' containing the papers read at the World's Congress Auxiliary on Ornithology, held at the Memorial Art Palace of the World's Columbian Exposition, Chicago, Oct. 18-21, 1893 (see *Auk*, X, p. 386, and XI, p. 89). It will form a single octavo volume, prepared under the editorship of Mrs. E. Irene Rood, and the edition will be limited to 600 numbered and registered copies. Subscription price, \$5.00 net. From the partial list of contents given in the prospectus it is evident that the work will contain many papers of permanent value, and from contributors of eminent standing.

It is announced that a General Index to the 18 volumes of 'The Ibis,' published from 1877 to 1894, is in course of preparation, together with a Subject Index to the whole work since its commencement in 1859. In order to provide funds for the large outlay involved, an appeal has been made to the members of the B. O. U. for subscriptions to the work, which of course will be of immense convenience to ornithologists the world over. Orders for copies may be sent to F. D. Godman, Esq., 10 Chandos Street, Cavendish Square, London, W. The subscription price is 21 shillings per copy.

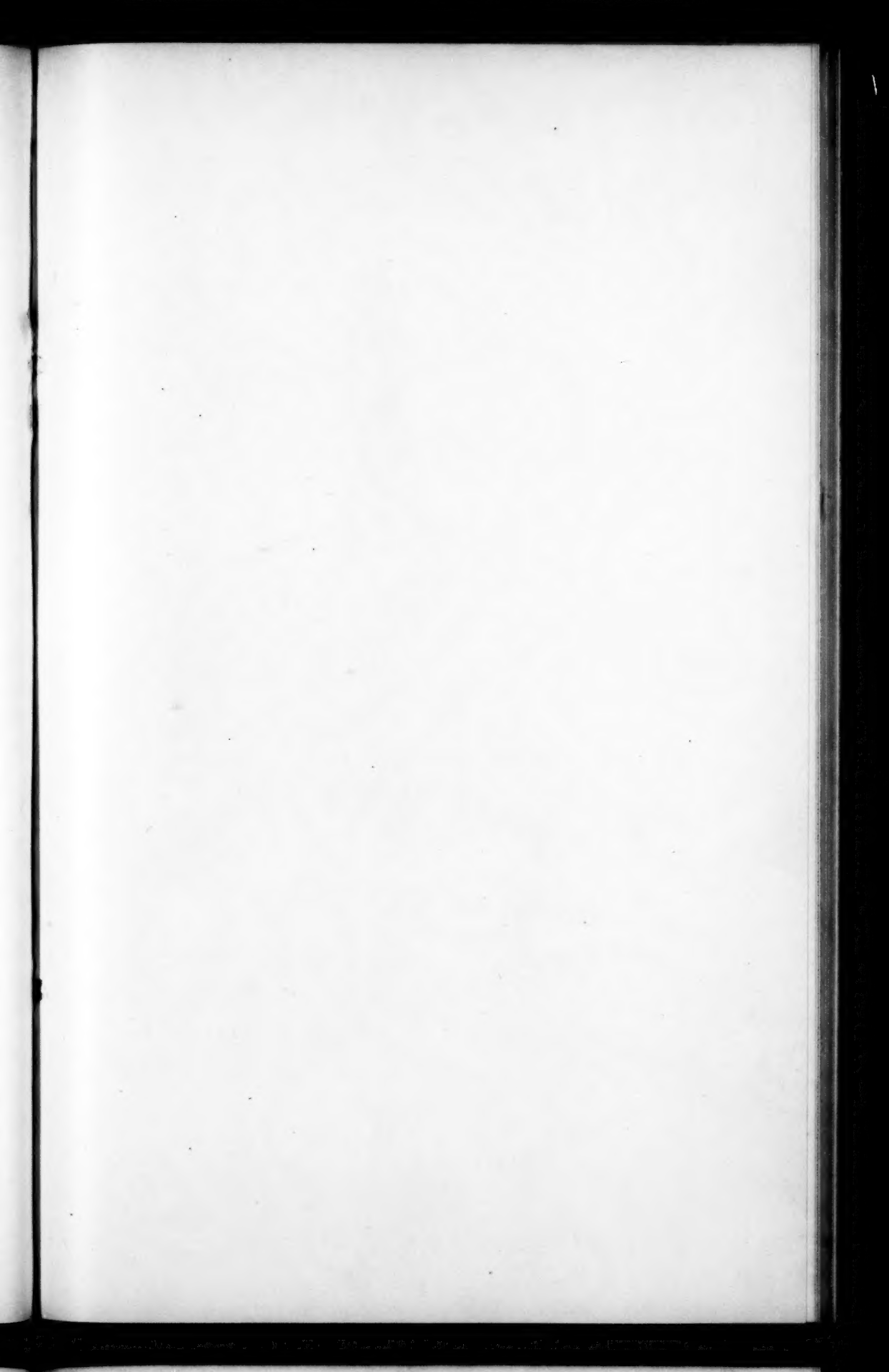
READERS of 'The Auk' will be interested to learn that the second volume of Major Bendire's standard work 'Life Histories of North American Birds' will probably be issued during the coming autumn. Of the text it is unnecessary to speak, but we are glad to be able to state that the plates will be of the same high character as those which distinguished the first volume.

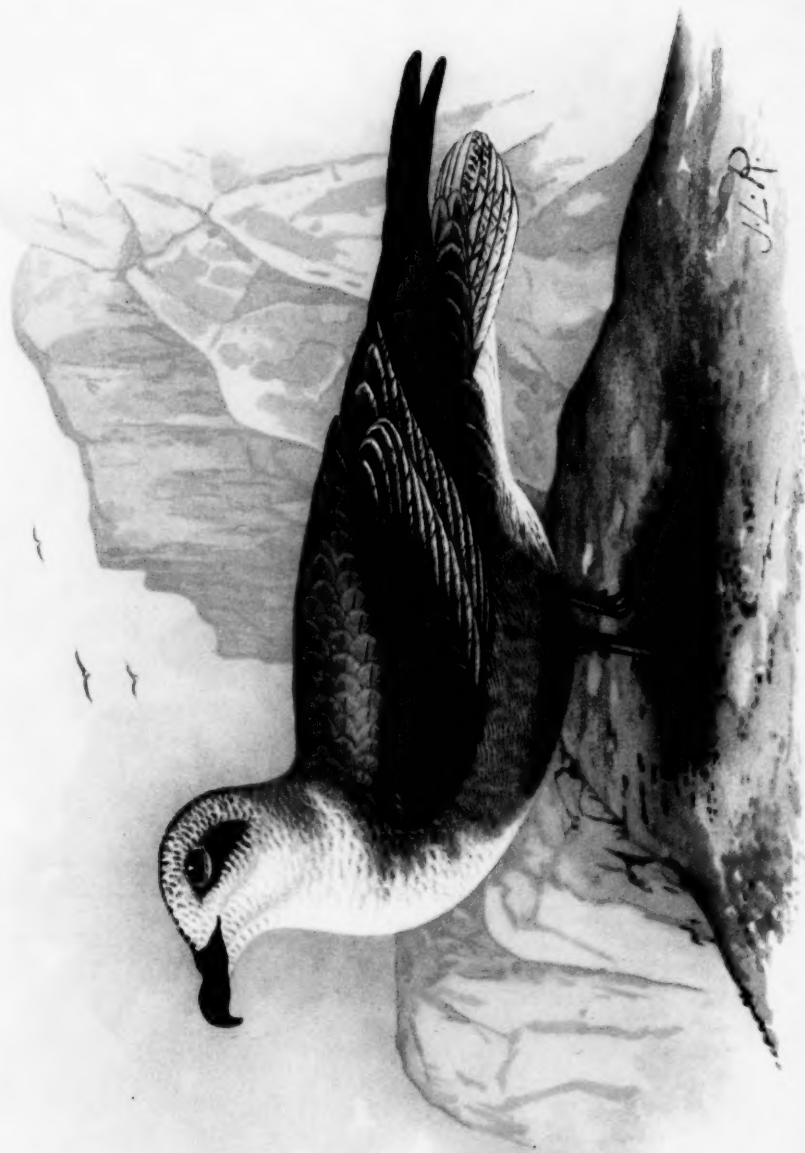
DURING the present session of the Connecticut legislature, a bill was introduced providing for the payment, by the State, of a bounty for killing Hawks and Owls. Active opposition to the bill was made by an official of the A. O. U., and several others. Facts were presented to the Committee on Agriculture, to whom the bill was referred, showing that Hawks and Owls, as a class, are beneficial to the farmer. An adverse report was made by the Committee and the obnoxious bill defeated when it came up for action in the House.

MR. GEORGE K. CHERRIE of the Field Columbian Museum, whose departure for San Domingo to make ornithological collections was noticed in the January 'Auk,' has returned after an absence of five months. In spite of the hardships occasioned by an unusually wet season and the inhospitality of the degraded negroes of the interior, Mr. Cherrie was eminently successful and his collection of 2,000 birds and extended field notes will form the basis of valuable papers by Mr. Chas. B. Cory and himself on the avi-fauna of this comparatively little known island.

'THE NIDIOLOGIST' for May announces that Dr. R. W. Shufeldt has joined forces with Mr. H. R. Taylor in the editorial management of this enterprising journal, an arrangement which will undoubtedly add to its increasing popularity.

SOMETHING quite new in the line of bird exhibits has recently been placed before the public in the Agassiz Museum of Comparative Zoölogy at Cambridge, Mass., in the W. E. D. Scott Collection of mounted birds, first opened for inspection June 18 of the present year. The exhibit consists at present of fifty-six cases, containing about 250 specimens, the beginning of a collection which it is hoped will some day surpass in interest, instructiveness, and artistic effect anything the world has yet seen in the way of a museum exhibition of birds. Each case is devoted to a single species, the cases varying in size with the species it is designed to illustrate. The purpose of the work is not only to show birds in life-like and natural attitudes and surroundings, but to illustrate special facts in ornithology, as variations due to sex, age and reason, dichromatism, geographical variation, protective coloration, etc. This is a plan Mr. Scott has long had in mind, and with his well-known skill and taste as a taxidermist, his intelligence and training as a naturalist, and his wide-field experience we may well anticipate the production of a collection of mounted birds far in advance of any hitherto attempted. The expense of the undertaking, which will of course be large, we understand is defrayed by friends of the museum, and we trust that there will be no lack of funds for such a meritorious work.





ASTRELATA FISHERI RIDGW.